Farming for the Future Progress Report 1989

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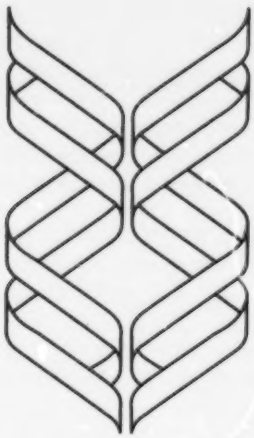

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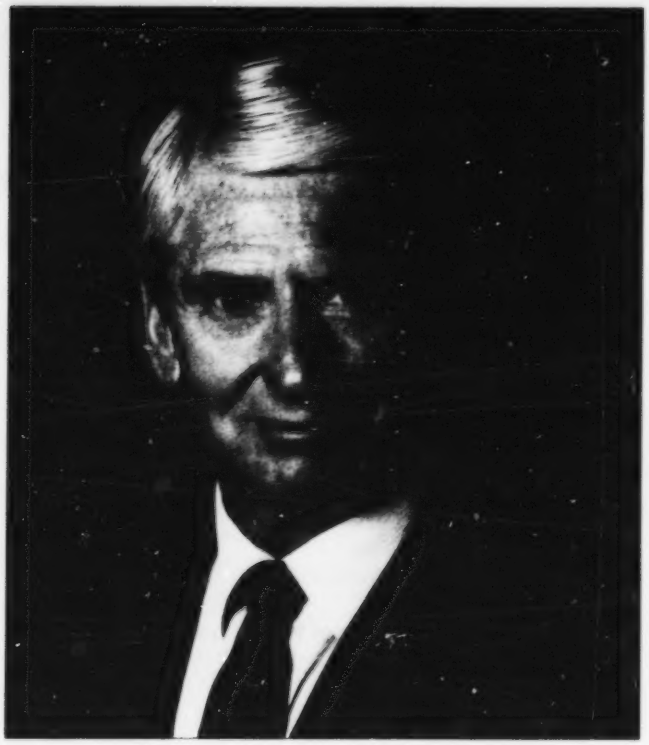
Chairman's Report



As Chairman of Alberta's Farming for the Future Council, I am pleased to present the 10th annual Progress Report of the Farming for the Future agricultural research program. This report covers the operating year April 1, 1988 to March 31, 1989.

I have always been proud of Farming for the Future's goals of improving net farm incomes and promoting the long-term viability of Alberta's agricultural sector. Since the program began funding projects in 1979, everyone involved has worked hard to meet these objectives. The many challenges faced by the agri-food industry in the 1980s have shown how we must all strive to be successful in these changing times and how important agricultural research is in meeting these challenges.

For instance, millions of dollars are being lost annually through soil degradation. We can no longer afford to use our land base for primarily short-term gains. To meet the challenges of the coming decades, we must conserve and enhance our crucial sources of natural wealth. In developing an industry with long-term viability, we need to take into account both economic and environmental concerns. Farming for the Future is helping to find ways to work towards the sustainable and profitable development of the industry.

The changing economic situation and the often difficult weather conditions of the 1980s have provided powerful reminders of the importance of Farming for the Future's emphasis on the long-term needs of the industry. To act effectively for today and tomorrow, we must not only know how to build a successful agricultural industry, we must also act on our knowledge in a way that is best for farmers and farming. Farming for the Future has two funding mechanisms to help achieve this: the Research Program and the On-Farm Demonstration Program. The former supports agricultural research to determine what needs to be done, and the latter communicates the practical results of research and technology developments to farmers so they can implement these advances.

In 1988-89, the second year of Farming for the Future's third mandate, the program received an allocation of $5 million from the Alberta Heritage Savings Trust Fund. From a total of 231 applications, 100 research projects were awarded funds totalling $3.916 million. Also in 1988-89, 167 demonstration projects were supported with total funds of over $593,000.

Many 1988-89 Farming for the Future research and demonstration projects could someday assist sustainable agriculture — sustainable environmentally and economically. These included studies to:

- conserve soil fertility through minimum and zero tillage practices;
- develop biological and cultural pest controls, and breed resistance to pests into crops;
- use irrigation waters efficiently and reduce salinization in irrigated and dryland soils;

- improve livestock nutrition so the animals are healthier and better able to fight off disease;
- enhance the nitrogen-fixing capacity of microorganisms associated with legumes such as alfalfa;
- increase the efficiency of storage and processing techniques for agricultural products;
- develop alternatives to our traditional crops to diversify the industry; and
- create new methods of processing and better ways of marketing our agricultural products.

With projects like these, Farming for the Future is looking ahead to the 1990s to promote long-term, sustainable growth in the province's agricultural sector.

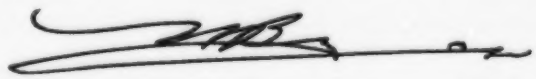
The Farming for the Future Council reviews and assesses proposals for projects under the Research Program. In 1988-89, Council had several important changes in membership. In July 1988, Dr. Roy Berg retired. Dr. Berg, as Dean of the Agriculture and Forestry Faculty at the University of Alberta, served Farming for the Future well and I know his input will be missed. Replacing Dr. Berg as the University of Alberta's representative is its new Dean of Agriculture and Forestry, Dr. Edward Tyrchniewicz. I know that Dr. Tyrchniewicz is very interested in sustainable agriculture and I am sure he will provide valuable counsel.

Two producer members also finished their terms: Mr. Don Cox of Fairview and Mr. Keith Porter of Duffield. Their good judgement and expertise have been a great asset to Council and I thank them for their participation. In 1988-89, Council also welcomed three new producer members: Mrs. Jacalyn Anderson of Rimbey, Mr. Jim Hole of St. Albert and Mr. Murray Holt of Sangudo. I am pleased to be working with these new members, and I know we will gain the benefits of their knowledge and sound advice.

Finally, I would like to say how deeply saddened I and all members of Council are at the sudden passing of Ed Shimbashi in May 1989. Ed joined Council in 1981 as a producer member and as the representative of the Irrigation Council of Alberta. He was our longest-serving member and his years of impressive service to Farming for the Future and to Alberta's agricultural industry are very much appreciated. Ed was an outstanding Albertan and his death is a great loss.

The role of all Council members since Farming for the Future began 10 years ago has been vital in making the program a success. The Council has made many tough decisions and it can be very proud of the results. Since 1979, the program has awarded approximately $43.555 million to 514 research projects and almost $2.712 million to 583 demonstration projects.

Farming for the Future is a vitally important method for support of research aimed at improving Alberta's agricultural industry. As we progress toward the end of the program's third mandate in March 1992, I am certain its research and demonstration projects will continue to create significant benefits for the industry. I am certain because Farming for the Future is built on the hard work and innovative ideas of producers, scientists, technicians, Council members, Council's committee members and administrative staff. It is their joint dedication to Alberta's agricultural producers and processors that have made Farming for the Future a success. Their efforts are helping to make the agri-food industry in Alberta economically and environmentally sustainable in the years ahead.



H.B. (Ben) McEwen
Deputy Minister of Agriculture
Chairman, Farming for the Future Council
December 1989

1989 Progress Report

Introduction

In 1988-89, the Farming for the Future Council continued to work successfully with agricultural producers, processors, researchers and extension personnel to conduct research and technology transfer to build a strong and sustainable agricultural industry in Alberta.

Farming for the Future began funding agricultural research in 1979. For a decade it has supported studies aimed at improving net farm incomes and promoting the long-term viability of Alberta's agricultural sector. The province's agricultural industry has faced many challenges since 1979 and the need for research to meet these challenges remains as crucial now as it was then.

As the 1990s approach, several major areas of concern have come to the fore in the agriculture and food sector, not the least being the environment. The industry must not only be successful in the short term with sound management practices for today, it must also look ahead and use our soil and water resources wisely. Farming for the Future is helping the industry on this and other fronts. It supports projects to make production and processing more efficient, and to enhance the marketability of the industry's products. It also funds studies to conserve and improve the natural resources needed for the continued success of agriculture.

Farming for the Future has two funding vehicles to meet its goal of promoting the economic and environmental sustainability of the agri-food industry: the Research Program and the On-Farm Demonstration Program. Since its creation in 1979, the Research Program has supported agricultural research conducted by scientists in Alberta and across Canada. The On-Farm Demonstration Program, which began in 1982, transfers the results of research directly to Alberta farmers through tests and demonstrations conducted on the farms of local producers.

Farming for the Future is an Alberta Heritage Savings Trust Fund program and is currently allocated $5 million annually, subject to approval by the Alberta Legislature. The program is operating under its third mandate, and 1988-89 was the second year of this mandate's five-year term. The renewal of its mandate by the Alberta Legislature is a tribute to the program's many successful projects and the significant results they are yielding for the province's agricultural industry.

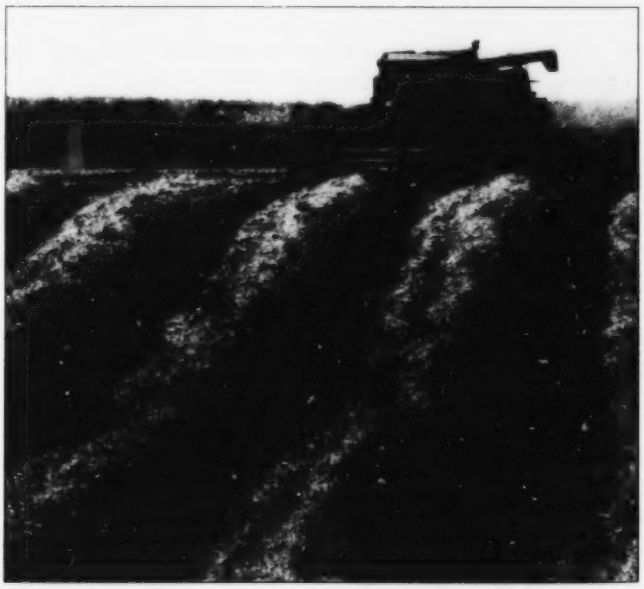
Administration

The Farming for the Future Council is the body which governs Farming for the Future. The 15-member Council is composed of producers and representatives of governmental and academic agencies, and is chaired by the Deputy Minister of Agriculture.

The Council reviews and approves all expenditures made by Farming for the Future. It also establishes policies and procedures for program activities. In 1988-89, the Council awarded a total of $3.916 million to 100 research projects, and 167 demonstration projects were supported with total funds of over $593,000.

The Research Division of Alberta Agriculture manages the program's day-to-day operations, administering projects and disseminating information on project results and on the program as a whole.

To enhance public awareness of Farming for the Future and its projects, the Research Division produced a number of publications in 1988-89. The *1988 Farming for the Future Progress Report* was prepared for publication. *Research Report*, a newsletter which deals with innovative results from Farming for the Future, devoted a special issue to listing current research projects. Also, a list of current on-farm demonstration projects was published as an insert in *Alberta Farm & Ranch* magazine. In addition to these publications, a collection of abstracts from finished research projects was compiled, and an updated collection of project summaries for the On-Farm Demonstration Program was distributed.



Research Program

Introduction

The Research Program is one of Farming for the Future's two major funding vehicles. Each year, qualified researchers submit formal proposals for research projects relevant to Alberta's agri-food industry. The proposals are thoroughly examined by one or more review committees, whose comments and analysis are then forwarded to the Farming for the Future Council. In turn, the Council makes funding recommendations to the Minister of Agriculture who makes the final decision on whether to support any project. Awards under the Research Program are generally made only once a year.

The Council is supported by nine committees which provide it with technical assistance in evaluating project proposals. These committees are: Cereals and Oilseeds; Crop Protection and Entomology; Forages; Irrigation; Land Resources and Engineering; Non-Ruminants; Processing and Marketing; Ruminants; and Special Crops. Each committee is chaired by a producer member of the Council. Committee members are producers, researchers and members of the private sector.

Each research proposal is assessed according to various criteria including the suitability of the research design, the cost and length of the project, and the potential benefit to Alberta's agricultural industry. In 1988-89, the Farming for the Future Council awarded a total of $3.916 million to 100 research projects. Some examples of these projects are described below, and a complete list of all 1988-89 research projects appears later in this report.

Crop Research

Cereals and Oilseeds

The production of cereals and oilseeds has long been a mainstay of Alberta's agricultural industry. In 1988, these crops generated nearly $1.46 billion in farm cash receipts. Wheat was the province's most valuable crop, with receipts of $692 million. Canola was second at $442 million, and barley third at $253 million. For continued growth and development, cereal and oilseed production must focus on profitability and sustainability.

One way of meeting these dual objectives is to breed crop varieties which are higher yielding, disease-resistant and adapted to local conditions. These varieties should require fewer inputs of fertilizers and pesticides per unit of output. In 1988-89, many of the Research Program's seven cereal and oilseed projects, supported with funds totalling $568,000, were aimed at developing such varieties.

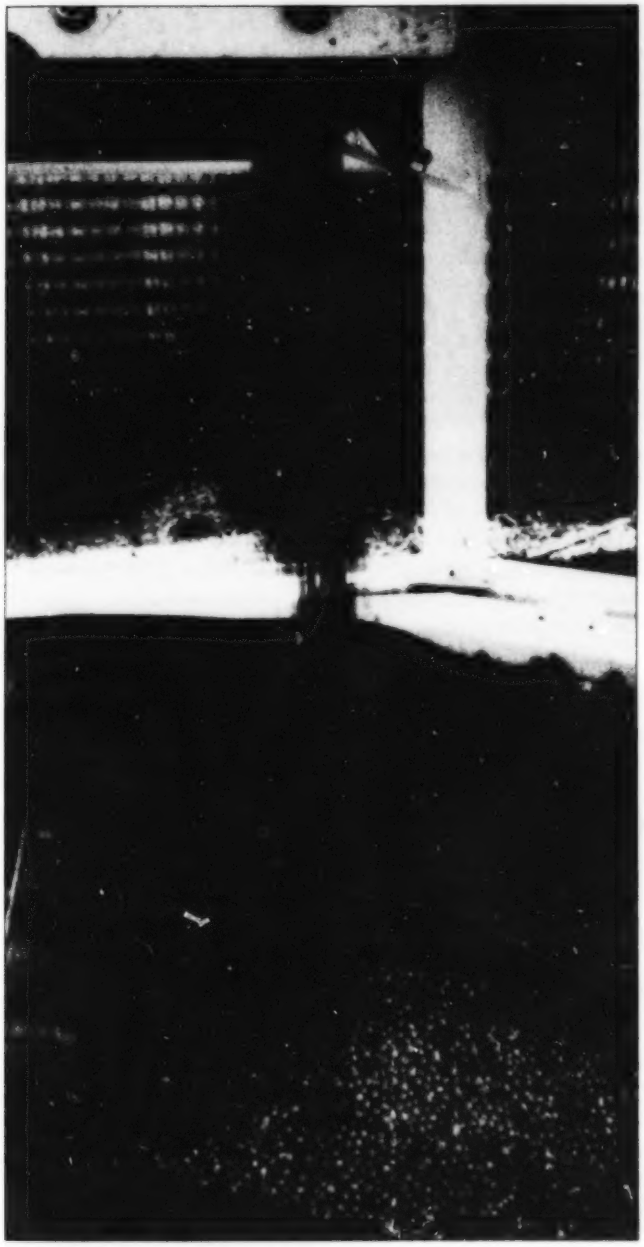
One project tested winter wheat cultivars to find cold-hardy lines resistant to snow molds. These molds can cause serious damage to winter wheat under the prolonged snow cover that often occurs in central and northern Alberta. An improved winter wheat variety would provide another sound crop option for the province's more northerly farmers.

A second study assessed soft white spring wheats for resistance to such diseases as stripe rust and black point. Disease-resistant lines, like these, would reduce yield losses and lead to the better grades of wheat required by many foreign markets.

Two projects evaluated cultivars of the popular oilseed canola. In these studies, the researchers are aiming to develop varieties which not only are resistant to diseases including brown girdling root rot, white rust and blackleg, but also are high yielding, early maturing and have a high oil content.

The ability of legumes to fix nitrogen in the soil reduces the need for fertilizers and conserves soil resources for subsequent crops.

Thousands of plots are planted each year by Alberta researchers.



Legumes, such as peas, are an important cash crop for many Alberta farmers.

Forages

In 1988, forage production in Alberta was valued at an on-farm cash equivalent of $800 million. Tame hay, cereal silage and green-feed accounted for the greatest share of this total. However, forages are not only economically significant, they are also valuable tools in the task of building a sustainable agricultural industry.

Recognizing this important role, in 1988-89, the Research Program supported seven projects directly related to forage production with a total allocation of $266,000.

Beyond their value for livestock feed, forages, especially legumes, make a significant contribution to soil conservation. Legumes such as alfalfa, clover and peas are able to take nitrogen from the air with the help of specialized bacteria. This process, called nitrogen fixation, reduces fertilizer requirements and conserves soil resources for subsequent crops. One 1988-89 research project evaluated strains of these bacteria, called *Rhizobia*, to find those which can better tolerate the cool soil conditions in northern Alberta. Commercial inoculants of *Rhizobia* are sometimes applied to legume seeds to increase their nitrogen-fixing capacity. Another study looked at ways of enhancing the longevity of such inoculants.

Legumes are also regaining importance as an alternative to summerfallow. They have several benefits: they can be plowed into the soil to increase organic matter and nitrogen levels; they can reduce the salinization of soils; and they can provide early ground cover to protect soil against wind and water erosion. For these reasons, Farming for the Future funded a project to develop guidelines for using legume plowdown as a replacement for cultivated summerfallow.

Alternative Crops

Many Alberta farmers are looking to new crop options to diversify their operations. As a result, farm cash receipts from crops such as sugar beets, potatoes, field peas and nursery stock rose dramatically from $78 million in 1978 to $222 million in 1988.

In recognition of the growing importance of diversification to economic stability in the agricultural sector, Farming for the Future awarded $281,000 to six alternative crop projects in 1988-89.

In the early 1980s, a Canadian variety of safflower, called Saffire, was developed with the help of Farming for the Future funds. In 1988-89, an on-going research project worked to develop a detailed production package with information on appropriate planting dates, seeding rates and other factors. This should enable farmers to maximize returns from this increasingly popular crop.

Another 1988-89 project investigated cool-climate agronomic practices for legumes such as peas, lentils and fababeans. These crops are valuable for soil conservation and enhancement, and better agronomic techniques would make them good alternatives to traditional crops.

Soil and Water

Alberta's soil and water resources are critical for the long-term viability of the province's agri-food industry. They must be managed effectively and efficiently with both short-term and long-term needs in mind. Many of the 1988-89 crop production projects supported by Farming for the Future relate in some way to soil and water resources. As well, the Research Program awarded $752,000 to 19 projects directly concerned with soil and water management.

Soil degradation due to erosion, salinization and the loss of organic matter is an extremely serious problem on the prairies. In 1988-89, a number of research projects were aimed at fighting soil degradation. Two projects took the very vital step of quantifying current problems. One evaluated erosion in east-central Alberta, especially with respect to the harmful effects of summerfallow; the other assessed how grazing in Alberta's foothills affects the area's soil and water.

Effective means of controlling irrigation water allow farmers to keep costs down and reduce the potential for soil degradation.

Several projects studied aspects of minimum tillage systems. These systems have a strong potential for reducing soil erosion. In one project, researchers evaluated the types of equipment needed to make such tillage systems most successful. In another, the long-term effects of zero tillage were monitored.

Some research projects investigated soil salinity, collecting more information on this growing problem, and developing ways to use this information to help farmers control and reduce salinizaton.

Irrigation annually accounts for about one-fifth of Alberta's crop production. In 1988-89 alone, more than 1,052,000 acres were under irrigation in the province. Effective control of irrigation water is essential for keeping costs down, reducing soil degradation and keeping yields high. Irrigation research studies included an investigation of irrigation scheduling to help farmers determine the most efficient use of water and fertilizer for the production of soft white spring wheat. Other projects looked at various methods of reducing leakage from irrigation systems and of better regulating the flow of irrigation water.

Crop Protection and Entomology

Controlling crop diseases, weeds and harmful insects has always been a concern for Alberta farmers. In recent years, there has been increased awareness of the long-term effects of using chemicals to control these problems. Farming for the Future is facing this double challenge of controlling pests today while maintaining the environment for tomorrow. In 1988-89, the Research Program supported 10 projects in this subject area with $409,000.

Several projects considered methods of biological control of crop pests. One study looked into the use of mycoherbicides, which are herbicides based on agents which naturally cause diseases in weeds. In contrast to chemical herbicides, the effects of a given mycoherbicide are specific to particular target weeds. As a result, they control weeds effectively without endangering desirable plants.

Other research projects evaluated the potential of non-chemical methods for control of insects including the brown wheat mite, the western flower thrip and grasshoppers. Some studies involved using combinations of non-chemical and chemical control methods so that less chemical could be used with greater effectiveness, less damage to the environment and reduced costs to farmers.

Livestock Research

Cattle and Sheep

Cattle and sheep are a vital part of Alberta's agricultural industry. In 1988, farm cash receipts from sales of cattle and calves were $1.395 billion, sales of sheep and lambs totalled $6 million, and receipts from sales of milk and cream were about $257 million.

Recognizing the great importance of this sector, in 1988-89, Farming for the Future awarded $796,000 to 24 projects on cattle and sheep production. A wide range of investigations were carried out, including studies on reproductive characteristics and problems of bulls, the effects of nutrition on growth and disease, cold tolerance and improved vaccines against diseases.

One project involved the development of vaccines against viruses causing bovine respiratory disease. Also known as shipping fever, it is a major cause of economic loss to western Canadian cattlemen. Conventional vaccines have not been very successful in reducing these losses. By using modern biotechnological methods, this study aims to produce better and less expensive vaccines.

Another study evaluated methods of treating straw to make it a better feed for cattle and sheep. Straw is currently used in livestock feed as a source of roughage. Improving its digestibility and nutritional quality would allow greater use of the large amount of available straw, and would lessen the need for hay production, freeing land for more valuable crops.

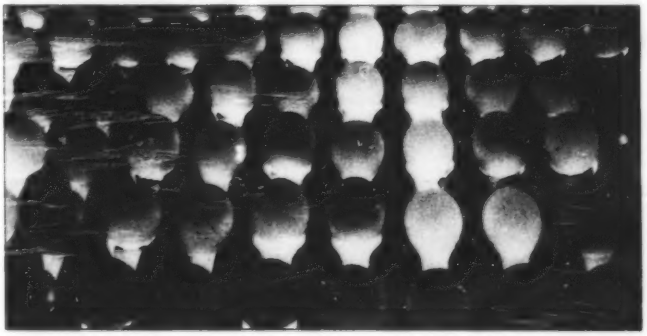
Research projects like these that could help increase production while lowering costs are fundamental to the long-term profitability of the livestock industry.

Three projects specifically focused on dairy cattle. One considered the factors affecting protein and energy utilization in dairy cattle to better determine feed requirements. The other two looked at the effects of growth hormone on such characteristics as milk yield and reproductive performance.

Swine and Poultry

In 1988, farm cash receipts from swine sales were $248 million. Cost-effective production is essential to the long-term success of the swine industry. In 1988-89, Farming for the Future funded five swine research projects with $210,000. These ranged from the effect of nutrition on reproduction to the factors which cause lower quality meat. Several studies determined the effects of nutritional management on swine productivity.

Farm cash receipts from eggs and poultry in 1988 were $136 million. This included approximately $90 million from sales of poultry meats and $46 million from sales of eggs. To help productivity in this sector, $121,000 was allocated for four research projects conducted in 1988-89. These included studies of the factors causing sudden death syndrome in broilers, nutritional methods of enriching eggs and the effects of diet on the protein content of broilers. One project assessed how minerals in feed and water sources affected egg shell quality. Shell defects account for the loss of approximately six to eight percent of all eggs produced by commercial egg-laying hens. Decreasing shell defects would significantly improve the cost-effectiveness of egg-producing operations.



Good quality control has led to a multi-million dollar egg industry in Alberta.

Processing and Marketing Research

Processing

Agricultural processing of primary products into "value-added" commodities is a crucial component in the long-term growth of Alberta's agricultural industry. In 1988, the province's shipments of processed food products totalled $4.54 billion.

In order to further develop agricultural processing, Farming for the Future supported seven projects with $216,000 in 1988-89. Areas of investigation included an innovative method to produce a canola-based substitute for soy sauce, new techniques to inhibit spoilage in meats, and advances in dairy processing.

At present Alberta's cheese and cultured milk industry depends on lactic acid starter cultures from the United States, but these cultures often have poor or questionable activity. One 1988-89 project studied lactic acid starter organisms with the objective of establishing dairy starter culture expertise in Alberta. In the long-term, this could improve the viability and quality of these cultures, and strengthen the local industry.

Alberta honey is recognized around the world as a perennial high-quality product.

Marketing and Socio-Economics

The marketing and socio-economic aspects of Alberta's agri-food industry are of mounting importance as the industry becomes more complex. National and international markets are more competitive, and demands are changing significantly. Current information and accurate predictions are needed by producers and processors to build a successful industry.

In 1988-89, Farming for the Future funded eight marketing and economics research projects with an allocation of $202,000. Projects included an analysis of the effects of fertilizers and weather on prairie grain production and productivity, an evaluation of markets for western Canadian barley and wheat, and an assessment of the risk and return associated with beef feeder cattle.

Another project involved an analysis of the demand for red meats and related foods in Canada. It examined the decline in red meat consumption over the past decade to determine the factors underlying these changes and to derive updated and more comprehensive estimates of meat demand. Results from this project should permit more accurate forecasts of the demand for red meats.

On-Farm Demonstration Program

The On-Farm Demonstration Program combines information dissemination and the testing of agricultural technology. Under this program, farmers work with Alberta Agriculture personnel and other specialists to demonstrate innovative agricultural practices.

Since its inception in 1982, the program has proven to be a valuable tool for communicating new information and techniques to farmers. Field days and tours of project sites have accelerated the transfer of appropriate technologies by allowing producers to examine new crop varieties, livestock management techniques and other practices under local conditions. These projects also help Alberta Agriculture's district and regional staff and other researchers to identify areas of interest and research needs, and to become further acquainted with new developments in agriculture.

Individual farmers, agricultural associations and applied research groups are eligible to apply for funding under the program. Applicants work with Alberta Agriculture staff to develop project proposals. Regional review committees established in each of Alberta Agriculture's six regional offices then assess these proposals. The review committees are composed of producers and Alberta Agriculture personnel, with farmers forming the majority on each committee. The Alberta Agriculture director responsible for each region serves as chairman of that region's review committee. Every demonstration proposal is considered on the basis of its relevance to the region's agricultural sector, the experience of the applicants, and the size, cost and duration of the proposed project. The proposal and the committee's recommendations are submitted to the Farming for the Future Council for final approval.

In 1988-89, 167 projects (102 new projects and 65 on-going projects) were supported by the On-Farm Demonstration Program with total funds of over $593,000. (A list of these projects appears later in this report.) From 1982 to March 31, 1989, the program awarded a total of almost $2.712 million to 583 demonstration projects across Alberta. These projects covered a great range of topics, from improved methods of livestock management and better cereal and forage production, to alternative crops, calf embryo implantation and solar energy for powering farm operations.

The demonstration projects funded in 1988-89 show that Alberta farmers are keenly interested in creating an industry which is economically viable and environmentally sustainable. Many projects dealt with conservation measures such as reduced tillage to minimize soil erosion, and legume plowdown to improve soil organic matter and nitrogen content. Other projects illustrated producer interest in diversification to promote economic stability. These projects included studies on alternative crops like legumes, sunflowers and saskatoons, as well as investigations of non-traditional uses for crops. Often projects included evaluations of costs and benefits because profitability is a crucial component in the future of the province's agricultural industry.

The On-Farm Demonstration Program has successfully used a "hands-on" approach to demonstrate advances in agriculture and its popularity has continued to grow since 1982. New approaches to make the program even better are also being pursued. In 1988-89, researchers from the University of Alberta met with Alberta Agriculture's regional and district personnel to learn more about the program and to discuss increasing their involvement in such areas as experimental design and statistical analysis. With farmers, extension personnel and researchers working more closely together, the On-Farm Demonstration Program is poised to become even more effective and to increase its value to Alberta's agricultural industry as a whole.

Local demonstration of new crop varieties and new management technology has proven to be a valuable way to get research results into everyday use.

Future Directions

Farming for the Future has created a substantial record of success over the past decade, and it can be expected to build on that success, striving to better serve Alberta's agri-food industry through innovative research.

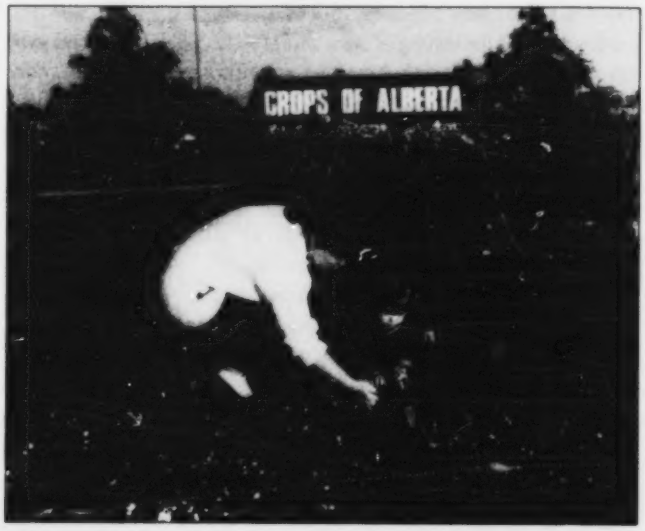
In the coming years, efforts will be made to further increase co-ordination and co-operation with other agricultural research agencies. This will be achieved partly through the activities of the Alberta Agricultural Research Institute. The Institute is a Crown corporation created in 1987 to support, promote and co-ordinate agricultural research throughout Alberta. Farming for the Future will work closely with the Institute to ensure that the province's agricultural research dollars are put to the best possible use.

Farming for the Future has always viewed dissemination of research results as an important aspect of its overall objectives and it will be conducting various activities in this area in the coming year. To improve the effectiveness of its main method of communicating information, the On-Farm Demonstration Program, a set of guidelines for demonstrations is planned. Alberta Agriculture specialists and university researchers will be involved in the creation of these guidelines.

Farming for the Future will also host its Fourth Farming for the Future Conference, in March 1990 in Lethbridge. The conference will provide an opportunity for farmers and food processors to learn about innovations in agriculture directly from researchers.

In addition to its usual methods of information dissemination, Farming for the Future will be establishing a new computerized database of abstracts and summaries of research projects conducted under the program. Also, an electronic bulletin board system will provide access to the results of hundreds of projects to anyone with a computer, a telephone and a modem (which allows the computer to communicate over the phone line).

Whether it's applying successful methods developed over the past decade or creating new innovations, Farming for the Future will continue to play an important role in building a profitable and sustainable agri-food industry in Alberta through research and demonstration.



Caroline, 3, and her mother examine a "Crops of Alberta" demonstration plot in Edmonton. Caroline's researcher father says it is still a little early to predict if she will become a scientist of the future.

Research Program Project Summaries 1988-89

Project Title and Objective	Project Manager	Institution and Location	Funding Awarded 1988-89
CEREALS AND OILSEEDS			
Breeding Regionally Adapted Canola Cultivars for Alberta Growing Areas • to develop high yielding, disease resistant canola cultivars adapted to the Peace River region and to southern Alberta	R.K. Downey	Agriculture Canada — Saskatoon	80,000
Evaluation and Development of Soft White Spring Wheats for Western Canada • to develop high yielding soft white wheats with good resistance to disease and sprouting	R.S. Sadasivaiah	Agriculture Canada — Lethbridge	77,000
Identification of Cold-Hardy, Snow Mold Resistant Winter Wheat Lines for Central and Northern Alberta • to screen and test lines of winter wheat, triticale and related grasses which are cold hardy and resistant to snow mold	D.A. Gaudet	Agriculture Canada — Lethbridge	34,000
Acceleration of Canola Variety Development for the Peace River and Southern Alberta Regions • to develop canola varieties adapted to the Peace River region, and to irrigated dryland conditions in southern Alberta	D.L. Woods	Agriculture Canada — Beaverlodge and Lethbridge	215,000
Intensive Management Systems for Barley, Wheat, and Canola Production • to determine the effects of fertilizers, plant growth regulators, pesticides and stand density on barley, wheat and canola yields	D.C. Penney J.H. Helm	Alberta Agriculture — Edmonton and Lacombe	70,000
Advancing Wheat Adaptability to Acid Soil Conditions, Especially in North Western Alberta • to evaluate the use of several sources of genetic resistance to soil acidity	P. Clarke	Agriculture Canada — Beaverlodge	37,000
Accelerated Development of Blackleg Resistant Canola for Alberta Using Biotechnology • to screen Australian blackleg resistant canola breeding lines and cultivars for adaptation to Alberta	B.J. Cardy	Biotechnica Canada Inc. — Calgary	58,000
Understanding and Alleviating Green Seeds in Spring Canola: Impact of Increased Early Frost Tolerance on Degreening • to assess frost tolerance during seed maturation in *Brassica napus*, *B. campestris*, and *B. juncea*, and to identify the superior lines	A. Johnson-Flanagan	University of Alberta — Edmonton	55,000
CROP PROTECTION AND ENTOMOLOGY			
Development of Improved Methods of Forecasting Grasshopper Distribution and Abundance • to determine the effects of critical weather factors on grasshopper populations, and to incorporate findings into an improved system of outbreak prediction and description	D.L. Johnson	Agriculture Canada — Lethbridge	38,000
Quackgrass Control in Zero and Conventional Tillage Systems • to assess the effects of precisely timed, low rates of glyphosate (Roundup) and sethoxydium (Poast) on quackgrass control	K.N. Harker W.H. Vanden Born	Agriculture Canada — Lacombe and University of Alberta — Edmonton	40,000
Improving Herbicide Efficiency on Quackgrass and Other Perennial Weeds Which Have Dormant Buds Using PGRs • to determine the effects of plant growth regulators (PGRs) on herbicide efficiency, and to test herbicide/PGR treatments	J.S. Taylor	Agriculture Canada — Lacombe	23,000
Evaluation of Protective Work Wear for Agricultural Workers • to test currently available and new work wear for effectiveness in reducing pesticide penetration	E.M. Crown	University of Alberta — Edmonton	33,000
Control of Chalkbrood Fungi in Leafcutter Bees • to test the effectiveness of fungicides for controlling chalkbrood disease	E. Simpson	Alberta Alfalfa Seed Producers Association — Tilley	50,000
Effect of Brown Wheat Mite on Barley in Southern Alberta • to gain information on overwintering, dispersal and the effect of cropping practices on population levels of the brown wheat mite, and to determine the feasibility of cultural and chemical control measures	J.R. Byers	Agriculture Canada — Lethbridge	49,000
Cultural and Chemical Control of Downy Brome in Winter Wheat • to determine the time of establishment and effect of soil moisture and temperature on emergence of downy brome in winter wheat, and to test potential herbicides for selective control of downy brome	R.E. Blackshaw	Agriculture Canada — Lethbridge	45,000
Feasibility of Long Term Grasshopper Management • to evaluate the use of bran baits treated with low quantities of insecticide or *Nosema locustae* in large areas to reduce grasshopper populations	M. Dolinski	Alberta Agriculture — Edmonton	52,000

Project Title and Objective	Project Manager	Institution and Location	Funding Awarded 1988-89
Integrated Pest Management for Western Flower Thrips, *Frankliniella occidentalis*, in Greenhouse Cucumbers • to test the use of the predatory mite *Amblyseius cucumeris*, ground treatments, and pre-bloom pesticide treatments to control western flower thrips under Alberta greenhouse conditions	M. Steiner	Alberta Environment — Vegreville	50,000
Screening and Evaluation of Plant Diseases for Biological Control of Weeds • to evaluate known pathogens for use as mycoherbicides, and to continue to screen new material for pathogens	A.S. McClay	Alberta Environment — Vegreville	29,000
FORAGES			
Low Temperature Nitrogen Fixation for Alfalfa • to evaluate selected strains of *Rhizobia* bacteria for the ability to fix nitrogen in cool conditions	W.A. Rice	Agriculture Canada — Beaverlodge	50,000
Yield and Quality of Pasture Grasses During Initial Spring Growth and Fall Regrowth • to determine how plant maturity, structure, and shape are related to the yield and quality of various pasture grasses	V.S. Baron J.R. King	Agriculture Canada — Lacombe and University of Alberta — Edmonton	36,000
Feasibility of Double Cropping and Intercropping of Winter Cereals for Fall Pasture • to assess intercropping and double cropping of spring and winter cereals as a means of extending the grazing season	V.S. Baron D.F. Salmon	Agriculture Canada — Lacombe and Alberta Agriculture — Lacombe	49,000
Yield, Preservation and Nutritive Value of Moist Hay • to assess the effects of moisture content and preservatives on the quality of hay	G.W. Mathison	University of Alberta — Edmonton	44,000
Coating of Forage Legume Seeds with Rhizobium Inoculants • to improve the method of inoculating small-seeded legumes with nitrogen-fixing bacteria	W.T. Leps	Alberta Research Council — Edmonton	31,000
Fall Management of Three Orchard Grass Cultivars Under Simulated Intensive Grazing • to evaluate how the timing of late-season grazing affects the winter hardiness and spring regrowth of three orchard grass cultivars	J.R. King	University of Alberta — Edmonton	41,000
Restoration of Overgrazed *Festuca halli* Rangeland by Short Duration Grazing • to redirect research towards an investigation into the use of short duration grazing to restore over-grazed Festuca halli rangeland	A.W. Bailey	University of Alberta — Edmonton	15,000
IRRIGATION			
Irrigation Scheduling to Maximize Yield of Soft White Wheat Under Intensive Crop Management • to compare the effects of frequent irrigation over the entire growing season with irrigation applied only at critical times	J.M. Carefoot	Agriculture Canada — Lethbridge	33,000
Effectiveness of Interceptor Drains and On-Farm Grid Drains for Canal Seepage Control and Reclamation • to evaluate the relative effectiveness and cost of deep interceptor drains and shallow on-farm grid drains for canal seepage control	B. Galatiuk	CH2M Hill Engineering Ltd. — Calgary	44,000
Overshot Gate Discharge Characteristics • to determine the discharge characteristics of the overshot gate relative to gate position	J. Prozniak	MPE Engineering Ltd. — Lethbridge	20,000
Functional Study of Irrigation Turnout Gates • to develop cost effective and practical methods of reducing leakage and operational problems of turnout gates	H. Savage	Associated Engineering — Lethbridge	35,000
Evaluation of Single Delivery Flow Measurement Devices for Irrigation Application in Alberta • to develop and assess irrigation water metering devices for the individual farm turnout	J. Prozniak	MPE Engineering Ltd. — Lethbridge	51,000
Management Program for Optimizing Irrigation Reservoir Supply Levels • to develop a reservoir management routine which incorporates demands, upstream supply capability and reservoir through-flow routing	J. Byrne	University of Lethbridge — Lethbridge	10,000
LAND RESOURCES AND ENGINEERING			
Furrow Openers for Seed and Fertilizer Placement in Minimum Tillage Systems • to evaluate furrow openers for seed and fertilizer placement in terms of equipment design characteristics and economics	C.W. Lindwall	Agriculture Canada — Lethbridge	90,000
Effects of Crop Management Practices on Infiltration • to quantify the effects of agricultural management practices on soil moisture and temperature	D.S. Chanasyk	University of Alberta — Edmonton	15,000

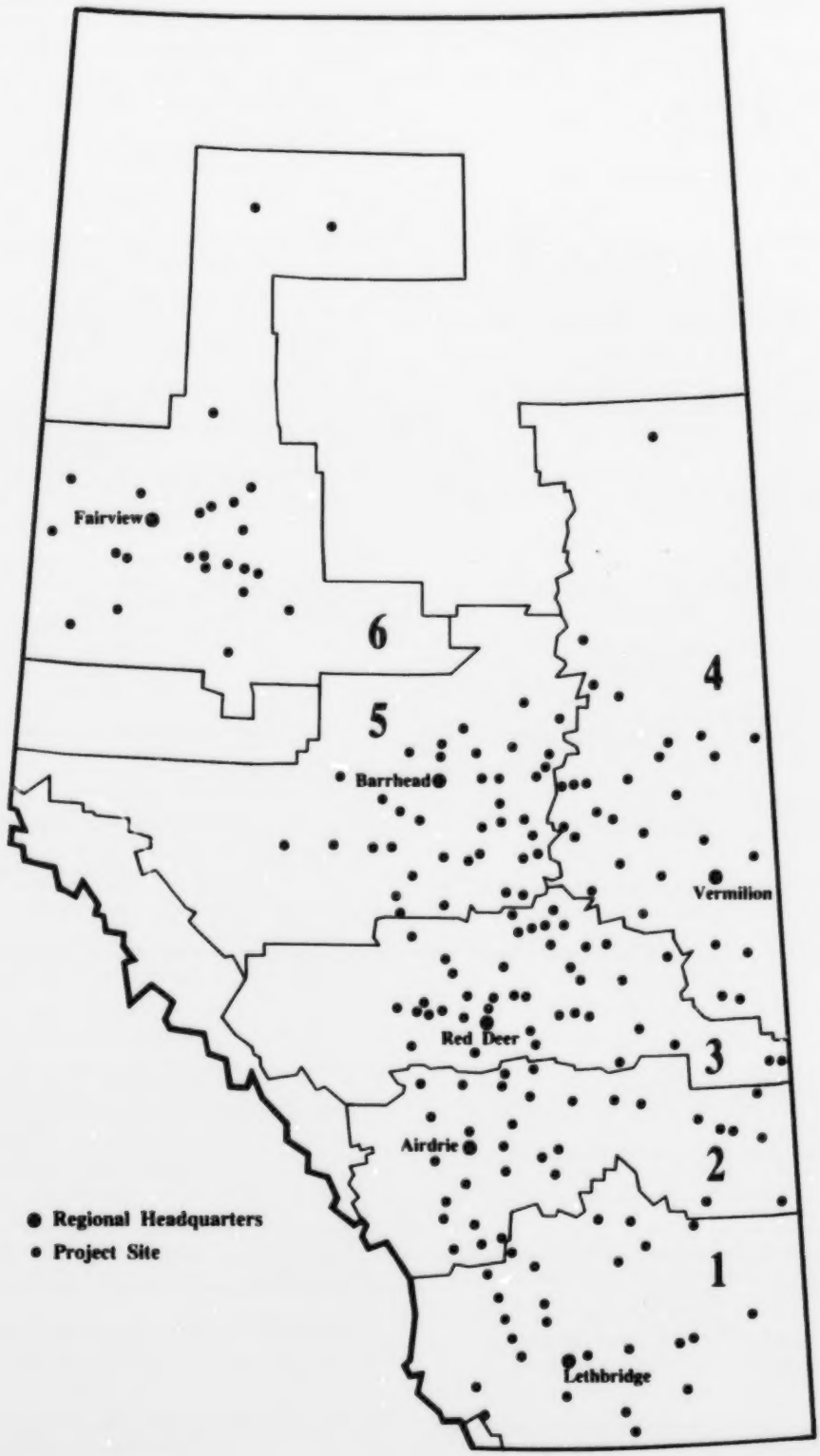
Project Title and Objective	Project Manager	Institution and Location	Funding Awarded 1988-89
Long-Term Influence of Tillage, Straw and Nitrogen on Soil Characteristics and Crop Yield • to evaluate the effects on crop yield of zero tillage versus conventional tillage, straw retention versus removal, and timing and method of nitrogen application	M. Nyborg	University of Alberta — Edmonton	49,000
Annual Legume Plowdown to Replace a Cultivated Fallow • to develop guidelines for the use of annual legume plowdown in order to maintain and improve soil nitrogen and organic matter levels	T.L. Jensen	Alberta Agriculture — Edmonton	53,000
Quantification of Soil Erosion in East-Central Alberta • to develop a predictive model to estimate soil erosion and deposition	R.W. Howitt	Alberta Research Council — Edmonton	28,000
Dryland Farming System Research for South and South Central Alberta • to develop an economic crop production system for the six soil areas in southern and south-central Alberta	R.H. McKenzie	Alberta Agriculture — Lethbridge	63,000
Field Mapping and Location Method Using Radio Signal Triangulation • to develop and test the microprocessor-based, digital-signal processing functions of a position-locating system for tractors and implements so that chemicals and fertilizers can be applied according to field requirements	J. Baker	Baker Electronic Enterprises Inc. — Edmonton	47,000
Maximizing Meadow Bromegrass Pasture Yield Through Optimum Fertilizer Nitrogen Management • to compare the efficiency of two N fertilizers (urea and ammonium) applied to meadow bromegrass in early spring, and to evaluate the influence of time of application on this efficiency	S.S. Malhi	Agriculture Canada — Lacombe	31,000
Information Management for Dryland Salinity Investigations • to develop a Geographic Information System which will assist in the investigation of dryland salinity situations, and to study the influence of regional, landscape and environmental parameters on the occurrence of dryland salinity	S.R. Moran	Alberta Research Council — Edmonton	42,000
Characterization of Airborne Dust Particles in Animal Housing • to quantify the rates of airborne dust (respirable and non-respirable), to characterize and identify airborne particles, and to characterize and identify the sources of dust	J. Feddes	University of Alberta — Edmonton	19,000
In-Bin Grain Moisture Monitoring • to test the feasibility of using soil moisture sensors to monitor the moisture content of grain in storage bins, and to establish whether the expansion/contraction of a grain mass can be used as a reliable indication of moisture content	J.J. Leonard	University of Alberta — Edmonton	18,000
Deep Tillage Tools for Soil and Water Conservation • to determine the effect of deep tilling on soil and water conservation, and to assess its long-term benefits	D.S. Chanasyk	University of Alberta — Edmonton	55,000
The Impact of Grazing on Rangeland Hydrology • to study the hydrologic impact of grazing on the sloped areas of the foothills fescue rangelands	D.S. Chanasyk	University of Alberta — Edmonton	46,000
Lessening the Economic Risks Associated with Nitrogen Fertilization of Cereals • to test the agronomic feasibility of various post-seeding methods of applying nitrogen in different soil zones	J. Ashworth	Norwest Soil Research Ltd. — Edmonton	40,000
NON-RUMINANTS			
The Effects of Prepubertal Nutrition on the Onset of Puberty and Ovulation Rate in Gilts • to investigate the influence of nutrition on age and weight at puberty and ovulation rate	F.X. Aherne	University of Alberta — Edmonton	35,000
Involvement of Diet in the Sudden Death Syndrome (SDS) in Broilers • to identify the dietary and environmental regimes associated with high incidence of sudden death syndrome in broilers	R. Blair	University of British Columbia — Vancouver	20,000
Meat Quality from Pigs Heterozygous for the Halothane Gene in Different Breeds of Pigs • to determine if the Halothane gene is expressed in meat colour and structure scores from pigs that are heterozygous for the Halothane gene	A.P. Sather	Agriculture Canada — Lacombe	50,000
The Influence of Mineral Content of Water and Feed on the Incidence of Egg Shell Defects • to identify specific minerals in water and feed that will cause an increase in egg shell defects	F.E. Robinson	University of Alberta — Edmonton	27,000
Influence of Dietary Fat Level and Composition on Protein Deposition in the Rapidly Growing Broiler • to assess the effects of diets varying in the level and composition of dietary fat on net protein and energy grain, and to assess the underlying rates of protein synthesis and degradation	V. Baracos	University of Alberta — Edmonton	35,000
Effect of Immunization of Gilts Against Paternal Antigens on Reproductive Performance • to determine how pre-immunizing young gilts against antigens from boars affects conception rate, ovulation rate and embryo survival	R.J. Christopherson	University of Alberta — Edmonton	46,000

Project Title and Objective	Project Manager	Institution and Location	Funding Awarded 1988-89
Post-Weaning Nutrition of the Pig: Nutrient Interactions Among Dietary Components • to determine the optimum levels of digestible protein, amino acids, fat and fiber in diets of early-weaned pigs	W.C. Sauer	University of Alberta — Edmonton	44,000
The Effects of Nutrition on Embryo Mortality in Swine • to determine the effects of normal or high feed intake levels in early gestation on embryo mortality and sow weight loss during lactation, and to determine the hormonal profile of sows fed high or low levels during lactation and early gestation	F.X. Aherne	University of Alberta — Edmonton	35,000
Nutritional Significance of Biologically Enriched Egg Yolk with Omega-3 Fatty Acids • to develop eggs and egg products biologically enriched with Omega-3 fatty acids by including full-fat canola, flax seed or fish products in laying-hen diets	J.S. Sim	University of Alberta — Edmonton	39,000
PROCESSING AND MARKETING			
Immobilization Technology for Accelerated Canola Sauce Fermentation • to develop a technique that would reduce the costs and time needed to produce a canola-based substitute for soy sauce	B. Ooraikul	University of Alberta — Edmonton	42,000
The Role of Fertilizer, Weather and Fertilizer-Weather Interactions in Prairie Grain Production and Productivity • to analyze the effects of fertilizers and weather on grain production	T.S. Veeman	University of Alberta — Edmonton	35,000
Use of Biotechnology to Develop Innovative Systems for Preservation of Meats • to select and develop strains of bacteria that will inhibit spoilage and disease-causing bacteria in meats	M.E. Stiles	University of Alberta — Edmonton	41,000
Quality Evaluations of Antioxidant Treated Canola Oils • to study the storage and heat stability of canola oils treated with antioxidants and combinations of antioxidants	Z.J. Hawrysh	University of Alberta — Edmonton	40,000
Potential Dairy Sector Adjustments to the Widespread Adoption of Bovine Growth Hormone • to assess the effects of increased milk production on economic competitiveness in Alberta's dairy industry	K. Nicol	University of Lethbridge — Lethbridge	In Progress
Feasibility of Lactic Acid Starter Culture Production in Alberta • to evaluate various strains of bacteria used in cheese production in order to establish a starter culture industry in Alberta	M.E. Stiles	University of Alberta — Edmonton	33,000
A General Equilibrium Model of Alberta's Agricultural Sector • to develop a model of the Alberta economy emphasizing the agricultural sector, and to use this model to evaluate policy initiatives	M.B. Percy	University of Alberta — Edmonton	15,000
Development of a Method of Rapid Analysis of Bovine Milk Proteins Composition by High Performance Liquid Chromatography • to develop a method of rapid analysis of bovine-milk proteins composition using high performance liquid chromatography	L. Ozimek	University of Alberta — Edmonton	15,000
Export Markets for Canada's Foodgrains and Feedgrains • to assess the market prospects for Western Canadian barley and wheat in the balance of the 1980s	M.M. Veeman	University of Alberta — Edmonton	37,000
Farm Agricultural Data Sources and Needs, and Related Planning • to identify the present and potential agricultural and financial data needs of Alberta's agricultural researchers, policy-makers, managers and advisors	G.A. Mumey	University of Alberta — Edmonton	41,000
Incidence, Origin and Control of Pathogenic Bacteria in Raw Milk and Milk Products • to determine the incidence of pathogenic bacteria in the raw milk supply in Alberta (specifically *Salmonella, Listeria,* and *Campylobacter)* and the origin of pathogenic isolates, and to develop a strategy to limit the numbers of pathogenic organisms in raw milk and dairy products	H. Jackson	University of Alberta — Edmonton	15,000
Future Directions for the Alberta and Canadian Sheep Industry • to analyze the factors responsible for the decline in the Canadian sheep industry, and to identify the appropriate future direction for the industry	M.H. Hawkins	University of Alberta — Edmonton	15,000
Analysis of Sulfathiazole in Honey • to examine how ST (sulfathiazole) breaks down in honey, and to determine if disappearance of ST can be correlated with a loss of antibiotic activity	P. Sporns	University of Alberta — Edmonton	30,000
The Demand for Red Meats and Related Foods in Canada • to derive updated and more comprehensive estimates of the demand relationships for red meats and related foods in Canada, and to assess factors underlying changes in consumption patterns for red meats in recent years	M.M. Veeman	University of Alberta — Edmonton	24,000

Project Title and Objective	Project Manager	Institution and Location	Funding Awarded 1988-89
Risk and Return to Beef Feeder Cattle Investments in Alberta • to determine the risk and return associated with beef feeder cattle as compared to alternative forms of investment, and to initiate a data series for future use	L. Bauer	University of Alberta — Edmonton	17,000
Identification of Key Factors Involved in the Decision Making Process Among Farm Operators in Alberta • to identify social/psychological and economic factors that influence farm decisions, and to assess the scope of influence of these factors	D.S. Gill	University of Alberta — Edmonton	18,000
RUMINANTS			
Vitamin E and Selenium Deficiency: Immunological Manifestations • to study the effects of vitamin E and selenium deficiencies on disease problems in livestock	B. Blakley	Western College of Veterinary Medicine — Saskatoon	29,000
Manipulation of Hormones in Calves to Improve Their Rate of Growth • to evaluate methods of immunizing calves against somatostatin (an inhibitor of growth hormone release), and to determine the effects of this immunization on calf growth rates and feed efficiency	G.J. Mears	Agriculture Canada — Lethbridge	45,000
Application of Infrared Thermography and Ultrasonography for Diagnosis of Reproductive Problems in Beef Bulls • to develop infrared thermography and ultrasonography as diagnostic tools in assessing reproductive characteristics of bulls	G.H. Coulter	Agriculture Canada — Lethbridge	25,000
Development of Digestion Enhancement Agents to Convert Supplemented Chemically-Treated Straw to Ruminant Feed • to test the effects of digestion-enhancing agents and supplements on the digestibility and nutritional quality of barley and wheat straws	K.J. Cheng J.W. Costerton	Agriculture Canada — Lethbridge and University of Calgary — Calgary	56,000
Effect of Rumen Microbial Metabolism on Selenium Requirements of Ruminants • to study the availability of selenium under different dietary regimes in order to more accurately determine selenium requirements	L.M. Rode	Agriculture Canada — Lethbridge	40,000
Mechanism Mediating Ruminal Stasis in Ruminal Lactic Acidosis (Grain Overload) • to develop treatments to restore forestomach motility lost due to grain overload and so reduce the severity of this condition	E.C. Crichlow	Western College of Veterinary Medicine — Saskatoon	24,000
Vaccines Against Viruses Causing Bovine Respiratory Disease • to reduce losses due to shipping fever by developing better vaccines and improving the animal's ability to fight off the disease	L.A. Babiuk	Western College of Veterinary Medicine — Saskatoon	60,000
Factors Influencing the Efficiency of Protein (Amino Acids) and Energy Utilization by Dairy Cows • to study amino acid utilization in dairy cattle in order to more accurately determine feed requirements	J.J. Kennelly	University of Alberta — Edmonton	62,000
Endocrinological and Genetic Analysis of Superior Growth in Cattle • to characterize hormonal and genetic factors involved in growth regulation in cattle	R.K. Salmon	University of Alberta — Edmonton	25,000
Influence of Temperature on Protein and Amino Acid Digestion in Ruminants • to assess the effect of a cold environment on amino acid digestion, and to determine optimal dietary requirements in cold and warm environments	R.J. Christopherson	University of Alberta — Edmonton	30,000
Within and Between Breed Variation in Cold Hardiness of Cattle • to determine individual and breed variation in cold hardiness and metabolic capacity of calves	B.A. Young	University of Alberta — Edmonton	35,000
Studies on the Molecular Genetics and Endocrinological Basis of Muscle Growth in Double Muscled Cattle • to identify specific growth regulating genes that can be manipulated to enhance red meat production	M.A. Price	University of Alberta — Edmonton	20,000
Growth Hormone for Dairy Cattle-Mode of Action and Effect on Milk Production and Reproductive Performance • to determine the influence of growth hormone on milk yield and reproductive performance of dairy cows	J.J. Kennelly	University of Alberta — Edmonton	75,000
The Effect of Growth Hormone on the Intensity of Estrous Behavior in Lactating Dairy Cows • to determine the effect of growth hormone on onset, duration and intensity of estrus in lactating dairy cows, and to determine whether growth hormone alters systemic concentrations of estrogen during the periovulatory period	L.M. Rutter	Alberta Agriculture — Edmonton	18,000

Project Title and Objective	Project Manager	Institution and Location	Funding Awarded 1988-89
Association of Respiratory Tract Colonization with Adherence of *Pasteurella haemolytica*-Al to Epithelial Cells • to determine if an association exists between colonization of the bovine respiratory tract by *Pasteurella haemolytica* and increased *in vitro* adherence of this bacterial species to bovine oropharyngeal epithelial cells	J.W. Costerton	University of Calgary — Calgary	24,000
Development of a Recombinant Vaccine to Bovine *Rotavirus/Coronavirus* • to develop and test recombinant DNA produced vaccines against *rota* and *coronavirus* infections, and to develop an oral delivery system forthese vaccines	L.A. Babiuk	Western College of Veterinary Medicine — Saskatoon	38,000
The Enhancement of Casein Production Through Genetic Manipulation of a Bovine Casein Gene • to increase milk's protein content by genetically engineering a highly active K-casein gene	R.K. Salmon	University of Alberta — Edmonton	35,000
Risk Factors for Mortality Due to Calf Scours • to identify factors that predispose beef calves to neonatal diarrhea and subsequent death	J.M. Naylor	Western College of Veterinary Medicine — Saskatoon	25,000
Evaluating the Economic Disadvantage of Feeding the Pregnant Feedlot Heifer • to determine the average daily gain and feed efficiency of pregnant heifers fed during the third trimester, the cost effectiveness of aborting heifers at approximately 150 days of gestation, and the effect of pregnancy on carcass characteristics and yield	G.K. Jim	Feedlot Health Management — Okotoks	30,000
Urease Inhibitors for Ruminant Animals • to confirm that urease inhibitors will inhibit urea degradation in the rumen, and to obtain dose response curves so that the optimum level of inhibitor can be estimated	G.W. Mathison	University of Alberta — Edmonton	24,000
Rates of Digesta Flow and Rumination in Cattle • to determine the importance of rates of passage and amount of chewing on voluntary intake, digestibility, and energy losses	G.W. Mathison	University of Alberta — Edmonton	25,000
Influence of Somatostatin on Cold Tolerance in Ruminants and Response to Somatostatin Antibodies • to determine the role of somatostatin in regulation of body temperature, energy, protein metabolism and digestion in different environmental conditions, and to determine whether treatment with antibodies to somatostatin will improve cold tolerance of the newborn and growth and feed efficiency in cold environments	R.J. Christopherson	University of Alberta — Edmonton	30,000
Factors Affecting the Accuracy of Bull Evaluation for Gain in Bull Test Station • to estimate the minimum length of test period needed for proper evaluation of weight-gain potentials of bulls, and to quantify the relative importance of age, birth weight, initial weight, age of dam, et cetera on variation in weight gain	M. Makarechian	University of Alberta — Edmonton	5,000
Comparison of Natural Service Fertility of Yearling and Two-Year Old Bulls • to compare the fertility of bulls under different breeding pressures	M. Makarechian	University of Alberta — Edmonton	6,000
SPECIAL CROPS			
Safflower Management for Optimizing Yield and Quality • to evaluate safflower management techniques in order to prepare a detailed safflower production package	H.H. Muendel B. Roth	Agriculture Canada — Lethbridge and Alberta Agriculture — Lethbridge	55,000
Control of Bacterial Ring Rot and Blackleg Symptomless Infections of Potato • to study the symptomless phases of two potato diseases to determine the conditions necessary for their occurrence	S.H. DeBoer	Agriculture Canada — Vancouver	42,000
Increasing Tuber Yield by Manipulating the Physiological Age of Potato Seed Tubers • to investigate the effects of storage temperature on tuber yield, grade and earliness	N.R. Knowles	University of Alberta — Edmonton	65,000
Agronomic Studies Emphasizing Uniform, Earlier Establishment, Maturity and Adaptability of Cool Season Pulse Crops • to study agronomic practices for improved production of lentils, peas and fababeans	R. Gaudiel	Alberta Agriculture — Brooks and Lacombe	48,000
Adaptability and Agronomic Practices of Herbs, Spices and Essential Oil Crops for Alberta • to determine agronomic practices for commercial production of herbs and spices in Alberta	R. Gaudiel	Alberta Agriculture — Brooks	21,000
Disease Elimination in Potato Breeding Clones • to develop a source of disease-tested seed of clones included in the regional trial system of the potato breeding program	D.R. Lynch	Agriculture Canada — Lethbridge	50,000

Farming For The Future Project Sites



On-Farm Demonstration Program Project Summaries 1988-89

Project Title and Objective	Principal Co-operator/ *Project Location*	Project Co-ordinator/ *Office*	Funding Awarded 1988-89
REGION I - SOUTHERN ALBERTA			
Snow Management • to demonstrate the use of snow management to increase spring soil moisture in a chinook area	Dryland Salinity Control Association *Warner*	Don Wentz *Lethbridge*	2,050
Winter Canola Viability Program • to assess the feasibility of winter canola production in Southern Alberta	Knob Hill Farms *Claresholm*	Blair Roth *Lethbridge*	14,796
Intensive Culture of Irrigated Soft White Winter Wheat • to determine the feasibility of growing soft white winter wheat in southern Alberta under irrigation	John Hopkins *Burdett*	Ken MacPhail *Bow Island*	1,351
Field Verification of Innovative Alternative Crop Production Techniques • to assess the production of safflower, sunflower, pulses, corn and spices	Pulse Growers Association of Alberta *Lethbridge*	Blair Roth *Lethbridge*	23,778
Harvest Technology Alternatives for Irrigated Soft Wheat and Special Crops • to demonstrate the benefits of straight-cutting technology and conditioning in soft wheat and pulses	Pulse Growers Association of Alberta *Lethbridge*	Blair Roth *Lethbridge*	15,560
Indian Head Lentils vs Summerfallow • to assess the use of Indian Head lentils as a method of decreasing erosion	Ron Wickstrom *Vulcan*	Dennis Stretch *Vulcan*	1,460
Deep Ripping Trial • to study the effects of deep ripping on crop growth	Dryland Salinity Control Association *Warner*	Don Wentz *Lethbridge*	850
Downy Brome Control in Dryland Alfalfa • to demonstrate the use of herbicides to control downy brome in alfalfa	Dryland Salinity Control Association *Warner*	Don Wentz *Lethbridge*	1,400
Kochia Control in Dryland Alfalfa • to demonstrate the use of herbicides to control kochia in alfalfa	Dryland Salinity Control Association *Warner*	Don Wentz *Lethbridge*	1,400
Applying Infra Red Stress Monitor to Irrigation Scheduling of Alfalfa Seed • to assess crop stress using a plant stress monitor gun	George-Anne Rasmussen *Brooks*	Gordon Frank *Brooks*	3,700
Economic Analysis of Management Practices of Yearling Replacement Heifers • to evaluate the economic feasibility of irrigating pasture	Dave Boras *Picture Butte*	Dwight Karren *Lethbridge*	4,709
Solonetzic Soil Improvement Project • to assess the use of manure to improve soil structure and fertility	Bill Van Rootselaar *Fort Macleod*	Brian Laing *Claresholm*	1,080
Leafy Spurge Control by the Use of Grazing Sheep • to graze sheep in order to control infestation and spread of leafy spurge	Merle Archibald *Glenwood*	Jim Hansen *Cardston*	14,415
The Use of Insect Predators and Insect Screening in a Greenhouse Cucumber Crop • to evaluate the effectiveness of a biological control program in a commercial greenhouse cucumber crop	Peter Noonan *Medicine Hat*	Art Tellier *Brooks*	2,280
Evaluation of Four Powdery Mildew Tolerant Greenhouse Cucumber Cultivars • to demonstrate the performance of four powdery mildew tolerant cultivars with Corona	Peter Noonan *Medicine Hat*	Judy Butt *Brooks*	2,280
The Influence Timing of Irrigation Water Has on Crop Yield • to demonstrate the effect of timing and limited water application on crop production	Herman Kleissen *Coaldale*	Bob Riewe *Lethbridge*	6,200
Effect of Injecting Vitamin A on the Growth Performance of Feedlot Calves • to determine the effect of an additional injection of Vitamin A (in a feedlot situation) on economic return	Highway 52 Feeders *Raymond*	Dwight Karren *Lethbridge*	1,028

Project Title and Objective	Principal Co-operator/ *Project Location*	Project Co-ordinator/ *Office*	Funding Awarded 1988-89
REGION II - SOUTH CENTRAL ALBERTA			
Evaluation of Moisture Conservation of Continuous Cropping vs Summerfallow Rotation • to evaluate moisture levels and crop yields under two cropping regimes	Chinook Applied Research Association *Youngstown*	Lorne Cole *Hanna*	2,573
Chaff Ammoniation • to develop cost-effective, practical methods of ammoniating chaff	Ron Walton *Hanna*	Lorne Cole *Hanna*	1,000
Evaluation of Linear Measurements for the Selection of Replacement Heifers • to compare the use of a set of measurements (such as girth and body length) with the traditional method of visual appraisal	Dallas Jensen *Standard*	John Portail *Strathmore*	975
Remote Control Bale Weight Adjustment • to develop an attachment for a hay baler that permits adjustment of bale weights from the tractor cab	John Reid *Cremona*	Steve Archibald *Olds*	2,300
Controlled Suckling Demonstration • to demonstrate whether 48-hour calf removal will enhance pregnancy rate during the first 12 and 21 days of breeding season	John Campbell *Black Diamond*	Don Milligan *Airdrie*	1,100
Comparison of Sweet Clover Plowdown with Summerfallow • to measure the increase in soil nutrients as a result of sweet clover plowdown in a summerfallow - sweet clover - wheat rotation	Perry Ellis *Standard*	John Portail *Strathmore*	450
Sunflower Silage Demonstration • to demonstrate the use of sunflower for forage production, and to evaluate the palatability of this crop	Chinook Applied Research Association *Oyen*	John Ruschkowski *Oyen*	3,939
Corn for Fall Grazing Demonstration • to demonstrate fail grazing of standing corn crops	Chinook Applied Research Association *Oyen*	Lorne Cole *Hanna*	3,927
Zero Till Incorporation of Anhydrous Ammonia on Hayland to Control Pocket Gophers • to demonstrate the effectiveness of using NH_3 incorporated with a no-till system to control pocket gophers on hayland	Ernie Israelson *Didsbury*	Steve Archibald *Olds*	2,500
Black Lentil Trial, Nitrogen Fixation, Soil Erosion Control, Snow Trapping • to evaluate lentils as an alternative for crop-fallow rotation, and to demonstrate the nitrogen-fixing and snow-trapping properties of Indian Head black lentils	Eddy Yakiwchuk *Bassano*	John Portail *Strathmore*	650
Saskatoon Production: Transplant Survival and Hardiness and Non-Chemical Weed Control • to assess the production of Smoky and Northline Saskatoons, and to evaluate a method of weed control in these two varieties	Bill & Dorothy Jackson *Calgary*	Allen Toly *High River*	3,414
Economics of Establishing Forages for Soil Conservation • to assess the economic benefit of establishing forage stands for soil conservation	Miles Logan *Oyen*	John Ruschkowski *Oyen*	5,972
Regar Meadow Brome and Sainfoin vs Regar Meadow Brome and Cicer Milk Vetch for Pasture • to assess two forage mixes according to time to establishment and ability to compete with perennial weeds	Ron L. Hanson *Airdrie*	Barb Archibald *Airdrie*	2,250
Annual Forages as Grazing Alternatives • to assess the use of winter triticale and forage kale for grazing	Clinton Stankievech *Trochu*	Jeff Millang *Three Hills*	1,421
No Till Seeding Grass into Unbroken Sod • to increase pasture production by seeding tame grass	Irvan Laslo *Delia*	Ron Koots *Drumheller*	1,375
Expected Progeny Difference (EDP) Accuracy and Evaluation of Various Carcass Traits • to demonstrate the accuracy of EDP data, and to evaluate various carcass traits	Canadian Hereford Association *Calgary*	Don Milligan *Airdrie*	10,370
Comparison Between Propionic Acid and Super Hay as Hay Preservatives • to compare the use of Super Hay with propionic acid for hay preservation	Jack Macklin *Sundre*	Steve Archibald *Olds*	1,275
Evaluation of Computerized Service Bureau for Record Keeping and Cost Accounting Compared to Present Manual Records • to evaluate the use of computerized farm records	Joe Jeffray *Airdrie*	Lorne Owen *Airdrie*	1,470

Project Title and Objective	Principal Co-operator/ *Project Location*	Project Co-ordinator/ *Office*	Funding Awarded 1988-89
Mortality and its Causes on Commercial Broiler Farms • to determine the cause of death in broiler chickens over an entire production cycle	Sundgaard Poultry *Standard*	Rod Chernos *Airdrie*	4,700
Grazing Fall Rye Following a Greenfeed Crop • to assess the grazing of fall rye dual cropped with greenfeed	Duke Hartell *Turner Valley*	Allen Toly *High River*	617
Winter Canola Viability Program • to evaluate the feasibility of large-scale farm production of winter canola	Wilson Sutherland *High River*	Allen Toly *High River*	1,102
Economic Comparison of the Use of Annual Forage Establishment of Perennial Pasture for Sheep • to assess the cost of gain when annual and tame perennial pasture are added to an existing sheep rearing program	Terry Grant *Standard*	John Portail *Strathmore*	3,650
Field Pea Variety Trial • to demonstrate growth, yield and suitability of field pea varieties	Millerdale Land and Livestock Ltd. *Dalemead*	Scott Meers *Strathmore*	1,582
Watering Livestock with a Solar Pumping Station • to assess the use of a solar pump for watering livestock	Jim Stone *Olds*	Ron Woolf *Olds*	4,910
Grazing of Winter Triticale • to assess the grazing capacity and survival of winter triticale	Fritz Schwartzenberger *Beiseker*	Bob Drysdale *Calgary*	1,660
Test Underseeding Italian Rye for Late Season Grazing • to evaluate the underseeding of fall rye and Italian rye grass to barley for greenfeed under irrigation	David Kent *Beiseker*	Bob Drysdale *Calgary*	1,060
The Effect of Improved Air Quality on Broiler Chicken Performance • to evaluate the effect of improved air quality (as indicated by CO2 concentration) on broiler chicken performance	Country Lane Farms Ltd. *Strathmore*	Rich Smith *Airdrie*	5,175
Evaluation of Sheep Covers Under Alberta Conditions • to assess the economics, practicality and benefits of sheep covers	Ken & Val Slemko *Strathmore*	Scott Meers *Strathmore*	585
Eradication of Maedi-Visna by Artificial Rearing of Colostrum Deprived Lambs • to raise Maedi-Visna lambs from serum positive ewes, and to promote awareness of this disease	Alfred John and Bonny Howard *Didsbury*	Ron Woolf *Olds*	1,811
Increase Consumer Satisfaction of the 'New' Alberta Beef • to update beef producers on research results related to consumer concerns and cooking techniques for 'new' beef, and to provide consumers with information on selecting and preparing 'new' beef	Beef Education Committee *Beiseker*	Judy Shipley Smith *Airdrie*	2,314
Consumer Perception of Beef Quality • to enhance the consumer's perception of the quality of Alberta beef	Steer-A-Year Committee *Hanna*	Laura Lee Billings *Hanna*	4,550
Increasing Barley Consumption by Humans • to demonstrate the feasibility of using barley in the human diet and to subsequently encourage Alberta families to add barley to their diets by providing tested recipes in a booklet form	Alberta Barley Boosters *Cremona*	Karen Hoover *Olds*	4,568
Toadflax Control with Fallow and Herbicides • to demonstrate chemical and cultural methods of controlling toadflax	Laycraft Farms Ltd. *Blackie*	Allen Toly *High River*	665
Fertilizing Cereals and Oilseeds with a Point-Injection Applicator • to compare the effects of top dressing N and P on small grains and seeds with conventional and point-injection fertilizer methods	Richard Page *Strathmore*	John Portail *Strathmore*	2,400
REGION III - NORTH CENTRAL ALBERTA			
Manure Utilization Study on Intensively Grazed Pasture Using a Travelling Manure Gun • to evaluate a reel-type gun irrigation system for manure application, and to assess the effects of swine manure on pasture	Romney Farms *Eckville*	Brian West *Red Deer*	4,248
Reducing Summerfallow by Growing Winter Wheat • to determine the benefits of growing winter wheat, and to assess the field performance of a new seed drill	Byron Muddle *Kirriemuir*	Wayne Jackson *Red Deer*	800
Benefits of No-Till Cereal Production on Light Soil in the Pine Lake Area • to evaluate soil conservation and erosion control under zero tillage	Cliff Wood *Lousana* Larry Andrews *Innisfail*	Ted Darling *Innisfail*	1,820

Project Title and Objective	Principal Co-operator/ *Project Location*	Project Co-ordinator/ *Office*	Funding Awarded 1988-89
Earth Tempered Air Inlet • to demonstrate a ventilation system for livestock barns which uses an underground inlet pipe to reduce air temperature fluctuations	Eugene Brown *Clive*	Robert Borg *Red Deer*	1,000
Comparison of Precision Fertilizer Placement vs Random Banding on Semi-Dwarf Wheat and Barley • to compare precision fertilizer placement with random banding	Wayne Cressey *Red Deer*	Wayne Jackson *Red Deer*	1,128
Establishment of Productive Hay and Pasture Mixes on Peat Soils • to evaluate the effects on pasture productivity of using fertilizers and adapted grass species	Grey Wooded Forage Association *Rocky Mountain House*	Ted Ford *Rimbey*	5,459
Control of Somatic Cell Counts in Dairy Cows • to reduce and control somatic cell counts in dairy cows by employing sanitized udder wash and dry cow treatments	Art Pasman *Rocky Mountain House*	John VanderLeest *Red Deer*	2,000
Effect of Nurse Crop and Nitrogen Use on Forage Establishment and Future Nitrogen Fixation • to assess the effect of using a nurse crop and nitrogen on forage establishment and nitrogen fixation	Grey Wooded Forage Association *Rocky Mountain House*	Ted Ford *Rimbey*	2,150
Banding vs Broadcasting in Pasture with Various Rates of Fertilizer • to determine the effects of knifing fertilizers into pasture	Vern Puzey *Red Deer*	Wayne Jackson *Red Deer*	1,964
Effects of Cover Crop on Establishment and Future Yields of Smooth Brome and Alfalfa • to assess the effect of a cover crop on the establishment and yield of a smooth brome-alfalfa mix	Battle River Forage Association *Camrose*	George Rock *Camrose* Bjorn Berg *Vermilion*	2,154
Effects of Banding Fertilizer on Established Perennial Forages with a Knife Applicator • to determine the efficiency of using a "Vern Knife" applicator to apply various rates of fertilizer to established stands of mixed grass-legume forages	Battle River Forage Association *Camrose*	George Rock *Camrose* Bjorn Berg *Vermilion*	4,161
The Effect of Ivomec on Yearling Weight Gains on Pasture • to assess nematode infection level in yearlings on pasture, and to evaluate Ivomec injections as a treatment for parasites	Murray Stauffer *Eckville*	Dale ZoBell *Red Deer*	4,060
Broad Spectrum Pest Control in Cattle Using Ciodrin in Dust Bags • to assess the use of Ciodrin as an economical and efficient method of pest control in cattle	Ron Johnson *Wetaskiwin*	Brenda Ralston *Wetaskiwin*	480
Broad Spectrum Pest Control in Cattle Using Ectiban in Oilers • to assess the use of Ectiban as an economical and effective method of pest control in cattle	Manfred Kemp *Millet*	Brenda Ralston *Wetaskiwin*	540
Broad Spectrum Pest Control in Cattle Using Guardian Eartags • to evaluate the effectiveness of using Guardian eartags for one-time pest control treatment	Ray Grinde *Wetaskiwin*	Brenda Ralston *Wetaskiwin*	1,300
Chemical - Fallow Control of Leafy Spurge • to evaluate the use of Tordon 22K (picloram) and extra summerfallow operations to control leafy spurge	Don Hundeby *Wetaskiwin*	Hector Goudreau *Wetaskiwin*	1,920
Development of a Humane and Efficient Squeeze to Minimize Stress in Elk • to design and operate a squeeze for handling elk	Bob Blackmore *Westerose*	Hector Goudreau *Wetaskiwin*	3,720
Phosphorus Fertility Levels on Field Pea Quality and Yield • to determine the effect of phosphorus on yield and quality of field peas	Greg Jones *Ponoka*	Brian Cameron *Ponoka*	410
Safflower Demonstration • to demonstrate dryland production of safflower	Chinook Applied Research Association *Oyen*	Doug Cornell *Coronation*	1,732
Effect of Supplemental Protein Meal on Gain of Nursing Calves on East Central Alberta Pastures • to evaluate the benefit of feeding supplemental protein meal to nursing calves	Chinook Applied Research Association *Oyen*	Doug Cornell *Coronation*	3,225
Field Pea Variety Testing and Agronomic Study • to provide producers with information that will allow them to choose pea varieties best suited to their local areas	Central Alberta Branch Alberta Pulse Growers *Camrose*	David Samm *Camrose*	5,622
Sorghum Sudan Grass Production and Feeding Trial • to assess sorghum sudan grass as an alternative crop and feed	Barry Bielany *Killam*	Bruce Friedel *Sedgewick*	7,215

Project Title and Objective	Principal Co-operator/ *Project Location*	Project Co-ordinator/ *Office*	Funding Awarded 1988-89
Comparison of Precision Fertilizer Placement vs Random Banding • to compare precision fertilizer placement with conventional random banding	Windy Point Farms *Sylvan Lake*	Ted Nibourg *Red Deer*	1,405
Precision Placed Fertilizer vs Random Banding • to compare precision fertilizer placement with conventional random banding	Rick Deacon *Penhold*	Ted Nibourg *Red Deer*	1,128
To Establish Legumes in a Grass Pasture Without Tillage • to establish legumes in existing grass pasture without tillage	Woodstock Hog Farm *Lousana*	Ted Nibourg *Red Deer*	721
The Use of Pig Toys to Control Aggression and Growth Rate in Pigs • to examine growth rate and aggression in weaned pigs	M & GL Farms *Red Deer*	Marvin Salomons *Red Deer*	3,900
Dust Control Using Canola Oil in Home-Prepared Swine Rations • to assess the use of canola oil to reduce dust in feed	Harold Luce *Ponoka*	Brian Cameron *Ponoka*	2,323
Evaluating the Use of a Commercial Manure Additive for Odour Control on Solids Removal • to evaluate the use of Bio-gest to control odours and remove solids in manure	Geoff Panton *Eckville*	Brian West *Red Deer*	4,818
Special Crops Project • to evaluate alternative cash crop choices	Battle River Applied Research Association *Camrose*	Robert Dunn *Stettler*	5,517
Fertility on Solonetzic Soils • to test the effect of different rates of nitrogen, phosphorus and potash on the yield of spring wheat grown on solonetzic soils	Len Solick *Halkirk*	Robert Dunn *Stettler*	1,679
Effect of Banding High Phosphate Fertilizer on Established High Legume Forages with a Knife Applicator • to determine the effect of using a "Vern Knife" applicator to apply various rates of high phosphate fertilizer to established high legume forages	Battle River Forage Association *Camrose*	George Rock *Camrose*	3,369
Effectiveness of a Buffered Propionic Acid as a High Moisture Hay Preservative • to assess the use of Alfa-Save as a high-moisture hay preservative	Grey Wooded Forage Association *Rocky Mountain House*	Ken Ziegler *Rocky Mountain House*	1,541
Prescribed Burning and Intensive Grazing to Control Aspen Poplar in the Southeastern Parkland • to assess the use of burning and intensive grazing to control aspen poplar regrowth	Pat Rutledge *Monitor*	Doug Cornell *Coronation*	6,890
Maximum Economic Yield Demonstration • to demonstrate maximum economic yield while evaluating added fertilizer, fungicide and plant growth regulators	Pat Durand *New Norway*	David Samm *Camrose*	1,540
Maximum Economic Yield Demonstration • to demonstrate maximum economic yield while evaluating added fertilizer, fungicide and plant growth regulators	Dennis Rasmuson *Gwynne*	Hector Goudreau *Wetaskiwin*	1,460
Frequency of Feeding as a Method to Increase Productivity of Finishing Steers • to assess the effect of frequency of feeding on finishing steers	FEM Farms *Lacombe*	Dale ZoBell *Red Deer*	7,650
Precision Placed Fertilizer vs Random Banding • to compare precision fertilizer placement with conventional random banding	Mel Stickland *Red Deer*	Ted Nibourg *Red Deer*	1,128
Comparison of Precision Placed Fertilizer vs Random Banding Fertilizer • to determine if there is an advantage to precision fertilizer placement over conventional random banding	Bill Moore *Red Deer*	Ted Nibourg *Red Deer*	1,128
REGION IV - NORTHEAST ALBERTA			
Fall Rye Annual Pasture for Cow/Calf • to demonstrate native range supplemented with fall rye	Art Leighton *Wainwright*	Rick Klippenstein *Wainwright*	3,345
Economics of Plowdown in a Cattle Operation • to analyze the effect of various legumes incorporated as green manure	John Mayer *Chipman*	David Wong *Lamont*	500
Evaluating the Economic Productivity of a Rotational Grazing Scheme on Solonetzic Soils • to determine the economics of rotational grazing on solonetzic soils	Richard Mandryk *Lamont*	Emile de Milliano *Lamont*	2,060
Brush Control Using Fire and Controlled Grazing • to demonstrate the costs and benefits of using a combination of controlled grazing and fire for brush control	7-D Ranch Ltd. *Innisfree*	Bjorn Berg *Vermilion*	6,125

Project Title and Objective	Principal Co-operator/ *Project Location*	Project Co-ordinator/ *Office*	Funding Awarded 1988-89
A Beef Herd Management Plan for Improving Production Efficiency of a Cow-Calf Opcration • to demonstrate management indicators that will improve production efficiency and profitability in cow-calf operations	Lamont Beef Herd Management Club *Lamont*	Emile de Milliano *Lamont*	4,225
Intensive Beef Grazing Project • to assess the beneficial effects on herd productivity of rotational grazing and other intensive grazing practices	Larry Cherniwchan *Bellis*	Don Christensen *Smoky Lake*	1,275
Seasonal Suitability of Farm Forages for Elk • to demonstrate a seasonally suitable grazing rotation for elk, and to assess the suitability of various forages for grazing	Dan & Bob Plumb *Smoky Lake*	Grant Gillund *Smoky Lake*	7,799
Mechanical Alfalfa Pollination • to build a mechanical tripping device and pollinator for alfalfa	Curtis Boychuk *Smoky Lake*	Don Christensen *Smoky Lake*	4,400
Efficacy of Using Pelvic Area Measurements as a Criteria for Culling Replacement Heifers • to determine if pelvic area measurements can be used to predict calving difficulty, and thus be used as a practical culling tool	Tofield Beef Club *Tofield*	Ty Faechner *Ryley*	5,229
Efficacy of Using Pelvic Area Measurements as a Criteria for Culling Yearling Beef Heifers • to determine if pelvic area measurements can be used to predict calving difficulty, and thus be used as a practical culling tool	Vermilion Beef Club *Vermilion*	Josie Van Lent *Vermilion*	5,479
Comparison of Two Methods of Fertilizer Application on Established Hayland • to compare rejuvenation with liquid fertilizer on an established hay stand	Brian Lyons *Ryley*	Ty Faechner *Ryley*	2,030
Comparison of Deep Tillage Methods on Grey Wooded Soil • to demonstrate different deep tillage methods on grey wooded soils	Eugene Snyder *Glendon*	Ron Hockridge *Bonnyville*	690
Iron River Forage Seed Trial • to determine the economic feasibility of growing forage seed as a cash crop on grey wooded soils	Tim Kalinski *Bonnyville*	Bjorn Berg *Vermilion*	4,140
Evaluating the Feasibility of Forage Grass Seed Production in Northeastern Alberta • to determine the productivity of four grass species for seed production	Lakeland Forage Association *Bonnyville*	Harvey Yoder *Lac La Biche*	7,925
Evaluation of Species of Grasses for Grazing Purposes • to determine the grazing productivity of several grass species	Lakeland Forage Association *Bonnyville*	Harvey Yoder *Lac La Biche*	5,880
Late Summer Grazing • to evaluate the effects of late summer grazing	Andy Menard *Plamondon*	Harvey Yoder *Lac La Biche*	1,040
Maximum Economic Levels of Fertilizer • to assess the effect of fertilizer levels on the maximum economic yield of canola	Marwayne Canola Club *Marwayne*	Randy Bjorklund *Lloydminster*	15,053
Annual Forage Grazing • to assess the production of annual forages in a rotational grazing plan	East Central Forage Association *Provost*	Agnes Whiting *Provost*	6,677
Out-of-Season Breeding of Romanov Sheep • to assess economic value, daily gain and overall productivity of lambing every eight months	Tom Makowecki *Musidora*	Shane Dobson *Two Hills*	3,225
MEY Demonstration Project • to determine the economics of fungicide and plant growth regulators applied to barley	Ken Rempel *Tofield*	Ty Faechner *Ryley*	3,808
Scarification as a Management Tool for Range Improvement • to demonstrate the use of a scarification unit to improve bushland for pasture production	Alden Heppner *Lac La Biche*	Harvey Yoder *Lac La Biche*	1,300
Banding vs Broadcast of Forage Fertilizer • to assess the use and efficiency of a new forage banding knife	William Wasylchko *Smoky Lake*	Don Christensen *Smoky Lake*	6,123
Grass Variety Trials on Peat Soils • to test six grass species on peat soils	Jerry Tchir *Vilna*	Don Christensen *Smoky Lake*	3,000
Use of Hay Preservatives on Round and Square Bales • to assess the use of hay preservatives on alfalfa hay	Paul Rebkowich *Wandering River*	Harvey Yoder *Lac La Biche*	2,600

Project Title and Objective	Principal Co-operator/ *Project Location*	Project Co-ordinator/ *Office*	Funding Awarded 1988-89
Soil Conservation and Improvement - Alternatives to Conventional Summerfallow • to assess methods of preventing soil erosion, and to demonstrate the use of legume crops to improve long-term productivity	Mark Perkins *Wainwright*	Rick Klippenstein *Wainwright*	2,108
A Demonstration of Indian Head Lentils as an Alternative to Summerfallow • to demonstrate the use of Indian Head lentils as an alternative to summerfallow	Dave Stuart *Vegreville*	Jeff Beckingham *Vegreville*	760
Intercropping Lettuce with Cucumber and Tomato Production • to assess the economic feasibility of intercropping greenhouse lettuce with cucumber and tomato in the winter months	Richard Owen *Vilna*	Josie Van Lent *Vermilion*	5,000
REGION V - NORTHWEST ALBERTA			
Plowing vs Cultivating vs Discing • to compare yield, weed population, disease incidence and soil moisture content under three methods of cultivation	Greg Kyle *Morinville*	John Hladky *Morinville*	930
Effect of Dehorning or Castrating Feedlot Calves • to determine the most efficient time to castrate and dehorn feedlot calves	Northwest Cattle Feeders *Stony Plain*	Rob Hand *Barrhead*	4,200
Effectiveness of Fertilization on Newly Established Alfalfa • to demonstrate the effect of phosphorus, potassium, and sulphur fertilizers on the yield and winter survival of alfalfa	Kelly Olson *Athabasca*	Gary Berger *Athabasca*	1,610
Spray and Burn Technique Applied to Improve Pasture on Grey Wooded Soil • to evaluate the cost and effectiveness of using herbicides followed by burning to control aspen	Ken Porter *Duffield*	Patrick Hawkings *Stony Plain*	5,500
Agronomics of Field Peas in North Central Alberta • to assess various agronomic parameters, determine average yields, and evaluate the economics of field peas	Northern Branch, Pulse Growers Association of Alberta *Morinville*	John Hladky *Morinville*	24,916
Establishing Basic Climatic and Agronomic Parameters for Crop Production on Organic Soils • to establish basic climatic and agronomic guidelines for crop production on organic soils	Ken Thiessen *Tomahawk*	Gerald Laarhuis *Drayton Valley*	3,580
Demonstrating Rotational Grazing Using Optimum Levels of Management • to demonstrate rotational grazing	Gordon Bredo *Barrhead*	Alan Macaulay *Barrhead*	3,342
Desiccation vs Swathing - An Analysis for Field Peas • to assess the use of a desiccant as an alternative to swathing in field peas	Wes Latimer *Westlock*	Rod Carlyon *Westlock*	1,022
Controlled Grazing for Lactating Dairy Cows • to study the effect of pasture development, fencing techniques and grazing management on lactating dairy cows	Richard Wegner *Rollyview*	Janette McDonald Adam *Leduc*	2,500
Alfalfa Response to Sulphur Fertilizer • to assess the effects of sulphur fertilizer on alfalfa	Urs Pfaeffli *Westlock*	Rick Bjorge *Westlock*	1,020
Controlled Grazing • to demonstrate the effect of controlled grazing on carrying capacity and length of grazing season	Brownie Shymoniak *Boyle*	Michael Kiryluchuk *Athabasca*	1,775
Sclerotinia Stem Rot Field Monitoring Project • to monitor sclerotinia stem rot levels in canola growing areas	ProGro Canola Club *Edmonton*	Bill Chapman *Barrhead*	4,111
Fall Rye as a Double Cropped (Silage-Fall Pasture) Forage Option • to assess fall rye grown for silage and pasture production, and to evaluate its response to nitrogen fertilizer	Keith Porter *Duffield*	Patrick Hawkings *Stony Plain*	3,857
Crop Culture and Economic Feasibility • to demonstrate the techniques of intensive cereal management	Parkland Crops Club *Spruce Grove*	Patrick Hawkings *Stony Plain*	6,579
The Efficacy of Using Pelvic Area Measurements as a Criteria for Culling Replacement Heifers • to determine if pelvic area measurements taken during mid-pregnancy can be used to predict calving difficulty, and thus be used as a practical culling tool	West Central Forage Association *Evansburg*	Fred Young *Evansburg*	1,806

Project Title and Objective	Principal Co-operator/ *Project Location*	Project Co-ordinator/ *Office*	Funding Awarded 1988-89
The Efficacy of Using Pelvic Area Measurements as a Criteria for Culling Replacement Heifers • to determine if pelvic area measurements taken during mid-pregnancy can be used to predict calving difficulty, and thus be used as a practical culling tool	Pembina Forage Association *Westlock*	Rob Hand *Barrhead*	930
Embryo Implantation by Producer • to teach producers the techniques involved in handling, thawing and implanting embryos into recipient dams, thereby reducing the technical costs associated with embryo transplants	Joan Jansen *Barrhead*	Laura Rutter *Edmonton*	4,000
REGION VI - PEACE RIVER			
Canola Seedbed Preparation and Seeding • to determine the effect of variations in seedbed preparation and sowing on yield	Henry Dechant *Fairview*	Mike Rudakewich *Fairview*	660
Soil Conservation and Rehabilitation Through Minimum Tillage in a Continuous Cropping System • to demonstrate minimum tillage using a recent seed drill model	Ron Molson *Bonanza*	Garry Coy *Fairview*	10,900
Forage Stand Rejuvenation by Sod Seeding Legumes vs Fertilizer Application • to assess sod-seeding, total workdown and fertilizer application for forage rejuvenation	Gordon Herr *Valleyview*	Darryl Wells *Valleyview*	2,886
Forage Stand Rejuvenation by Sod-Seeding Legumes • to compare sod-seeding with total workdown	Tony Yelenik *Valleyview*	Darryl Wells *Valleyview*	1,091
Evaluation of Options for High Yields in Barley • to demonstrate the use of intensive management to maximize yields and profit	Don Wieben *Fairview*	Mike Rudakewich *Fairview*	5,052
Extended Grazing System with Chaff • to determine the effectiveness and economic feasibility of using chaff to extend the grazing season	Valleyview & District Forage Association *Valleyview*	Darryl Wells *Valleyview*	3,236
Alternative Land and Pasture Development Method • to evaluate the use of creeping red fescue and meadow foxtail on cleared land without any soil preparation	Dennis Morrison *Debolt*	Darryl Wells *Valleyview*	1,876
Reproductive Performance of Heifers Implanted with Synovex • to determine the effects of Synovex-C implantation on growth rate, pregnancy rate in the first 21 days of the breeding season, and calving difficulty in replacement heifers	Valleyview & District Forage Association *Valleyview*	Darryl Wells *Valleyview*	11,950
Hay Management System • to develop a hay management system	Valleyview & District Forage Association *Valleyview*	Darryl Wells *Valleyview*	13,466
Field Pea Production in Lower Peace • to compare the yield and maturity of five different varieties of field peas, and to compare peas grown with and without a nurse crop	Mick Watson *High Level*	Paul LaFlamme *Fort Vermilion*	890
Forages for Grazing • to evaluate various forages on different soils	Ron Hart *Fairview*	Dale Seward *Fairview*	543
High Tensile Electric Fencing • to construct a high tensile electric fence, and to assess its economic value	Dan Boyd *Fairview*	Dale Seward *Fairview*	70
Smoky River Heavy Soil Rotational Grazing Project • to demonstrate an alternative forage program to hay and grain rotation	Mariel Soucy *Girouxville*	Kim Mader *Falher*	1,340
Poplar and Willow Regrowth Control by Fire and Intensive Rotational Grazing • to demonstrate the use of fire and intensive rotational grazing to control poplar and willow regrowth	Ed Connolley *Berwyn*	Dave Spencer *Peace River*	1,940
Zero and Minimum Tillage in Continuous Cropping • to compare conventional and conservation tillage systems for continuous cropping	Smoky Applied Research and Demonstration Association *Falher*	Kim Mader *Falher*	11,000

Project Title and Objective	Principal Co-operator/ *Project Location*	Project Co-ordinator/ *Office*	Funding Awarded 1988-89
Maximizing of Pasture Use by Increased Production and Extension of Grazing Season • to assess various grass species for early spring and late fall grazing	Norman Hollingworth *Sexsmith*	Mike Rudakewich *Fairview*	4,414
An Evaluation of "Hay Mate" Under Four Field Management Conditions • to assess "Hay Mate" applied to a consistent forage stand	Andy Ross *Valleyview*	Darryl Wells *Valleyview*	1,674
Effects of Liquid Hog Manure Application in a Cereal and Oilseed Cropping Rotation • to assess the value of manure by evaluating crop response and long-term effects to soil	Carnie Morrill *Bonanza*	Roger Andreiuk *Spirit River*	5,040
Establishment of an OPP Free Sheep Flock by Using Cross-Fostering and Practical Isolation Techniques • to assess the effect of cross-fostering and isolation on OPP (Ovine Progressive Pneumonia) in a sheep flock	Ken and Morag Othen *Blueberry Mountain*	Trevor Jones *Fairview*	5,434
Saskatoon Growth Parameters and Grass Study in a Commercial Saskatoon Orchard • to assess the effects of grass species planted between saskatoon hedges on such factors as saskatoon growth, suckering ability, fruit yield and quality	Fruit Growers Society of Alberta *Beaverlodge*	Bill Smith *Grande Prairie*	8,300
Irrigation Techniques in Commercial Saskatoon Production • to determine the effect of irrigation and fertilizer on saskatoon berry size	Fruit Growers Society of Alberta *Beaverlodge*	Bill Smith *Grande Prairie*	3,180
Herbicide Management Techniques for Commercial Saskatoon Production • to evaluate herbicides on saskatoons	Fruit Growers Society of Alberta *Beaverlodge*	Bill Smith *Grande Prairie*	1,320
Maximum Economic Yields in Barley in Spirit River • to assess maximum economic yields of barley	Robert Young *Spirit River*	Mike Rudakewich *Fairview*	1,810
Maximum Economic Yields in Barley in the Falher Area • to assess maximum economic yields of barley	Daniel Dusseault *Girouxville*	Kim Mader *Falher*	972
Increase Alfalfa Forage Yield with Fertilizer • to assess the economics of fertilizer on alfalfa stands	Ed Dollevoet *Peace River*	Dave Spencer *Peace River*	885
Effect of Seeding Date on Winter Survival and Yield of Glacier Winter Canola • to determine the effect of different seeding rates on winter survival and yield of Glacier winter canola	John Iftody *Hotchkiss*	Elaine Ryl *Manning*	1,120
Utilization of a Refrigeration System for Indoor Wintering of Nucleus Colonies • to successfully overwinter (indoors) nucleus colonies headed by a young mated queen	North Star Honey Co. *Manning*	Doug Colter *Falher*	6,200
Natural Air Conditioning for Overwintering Honey Bees • to demonstrate the use of natural air conditioning to keep air temperature and quality constant during the critical period of overwintering	Jules Enterprises Ltd. *Watino*	Michael Pearson *Eaglesham*	6,200
Demonstrate Automatic Livestock Waterers, Water Pump and Electric Fence in Remote Areas (Using Solar Panels) • to demonstrate the use of solar panels to produce electricity	Guy Montpetit *St. Isodore*	Dave Spencer *Peace River*	2,264

Summary Schedule of Research Awards, by Institution

For the Year Ended March 31, 1989

	1988-89	1987-88
Educational Institutions:		
The University of Alberta	$1,516,000	$1,345,941
The University of British Columbia	20,000	31,440
The University of Calgary	24,000	36,200
The University of Lethbridge	10,000	29,000
The University of Manitoba	–	33,000
Western College of Veterinary Medicine	176,000	214,000
	1,746,000	1,689,581
Governments:		
Agriculture Canada:		
Beaverlodge	$ 379,000	$ 295,000
Fort Vermilion	–	48,000
Lacombe	229,000	285,967
Lethbridge	560,000	722,081
Saskatoon	80,000	80,000
Vancouver	42,000	64,000
	1,290,000	1,495,048
Alberta Agriculture	325,000	281,504
Alberta Environment	79,000	–
	1,694,000	1,776,552
Other:		
Alberta Alfalfa Seed Producers Ltd.	$ 50,000	$ –
Alberta Research Council	101,000	97,000
Associated Engineering Alberta Ltd.	35,000	–
Baker Electronic Enterprises Inc.	47,000	21,000
Biotechnica Canada Inc.	58,000	–
CH2M Hill Engineering Ltd.	44,000	44,980
Feedlot Health Management Services.	30,000	–
Lakeside Feeders Ltd.	–	50,000
MPE Engineering Ltd.	71,000	–
Nanuk Engineering and Development Ltd.	–	82,070
Norwest Soil Research Ltd.	40,000	–
Veterinary Infectious Disease Organization	–	50,000
	476,000	345,050
	$3,916,000	$3,811,183

Statistical Tables

Distribution of Research Program Projects and Estimated Funding by Institution **1988-89**

Institution	Number of New Projects	Number of Renewed Projects	Funding Awarded	Percent of Total Awarded
Agriculture Canada	6	18	$1,290,000	32.9
Alberta Agriculture	4	3	325,000	8.3
Alberta Environment	2	–	79,000	2.0
Alberta Research Council	1	2	101,000	2.6
Private Industry	8	1	375,000	9.6
University of Alberta	29	17	1,516,000	38.7
University of British Columbia	–	1	20,000	.5
University of Calgary	1	–	24,000	.6
University of Lethbridge	1	1	10,000	.3
University of Saskatchewan	2	3	176,000	4.5
TOTAL	54	46	$3,916,000	

Distribution of Research Program Projects and Estimated Funding by Program Area **1988-89**

Program Area	Number of New Projects	Number of Renewed Projects	Funding Awarded	Percent of Total Awarded
Cereals and Oilseeds	3	5	$ 626,000	16.0
Crop Protection and Entomology	6	4	409,000	10.4
Forages	2	5	266,000	6.8
Irrigation	4	2	193,000	4.9
Land Resources and Engineering	9	5	596,000	15.2
Non-Ruminant Livestock	7	2	331,000	8.5
Processing and Marketing	10	6	418,000	10.7
Ruminant Livestock	11	13	796,000	20.3
Special Crops	2	4	281,000	7.2
TOTAL	54	46	$3,916,000	

Distribution of On-Farm Demonstration Program Projects and Estimated Funding by Region

	1987-88			1988-89		
Region	Number of New Projects	Number of Renewed Projects	Funding Awarded	Number of New Projects	Number of Renewed Projects	Funding Awarded
Region I – Southern Alberta	6	12	$139,524	12	6	$ 98,338
Region II – South Central Alberta	22	8	86,660	26	11	88,309
Region III – North Central Alberta	28	9	103,483	26	12	103,305
Region IV – Northeast Alberta	10	1	40,082	20	7	111,794
Region V – Northwest Alberta	11	5	63,264	6	11	71,677
Region VI – Peace River	19	6	108,324	12	18	119,752
TOTAL	96	41	$541,337	102	65	$593,175

Distribution of Research Program Projects and Estimated Funding by Year

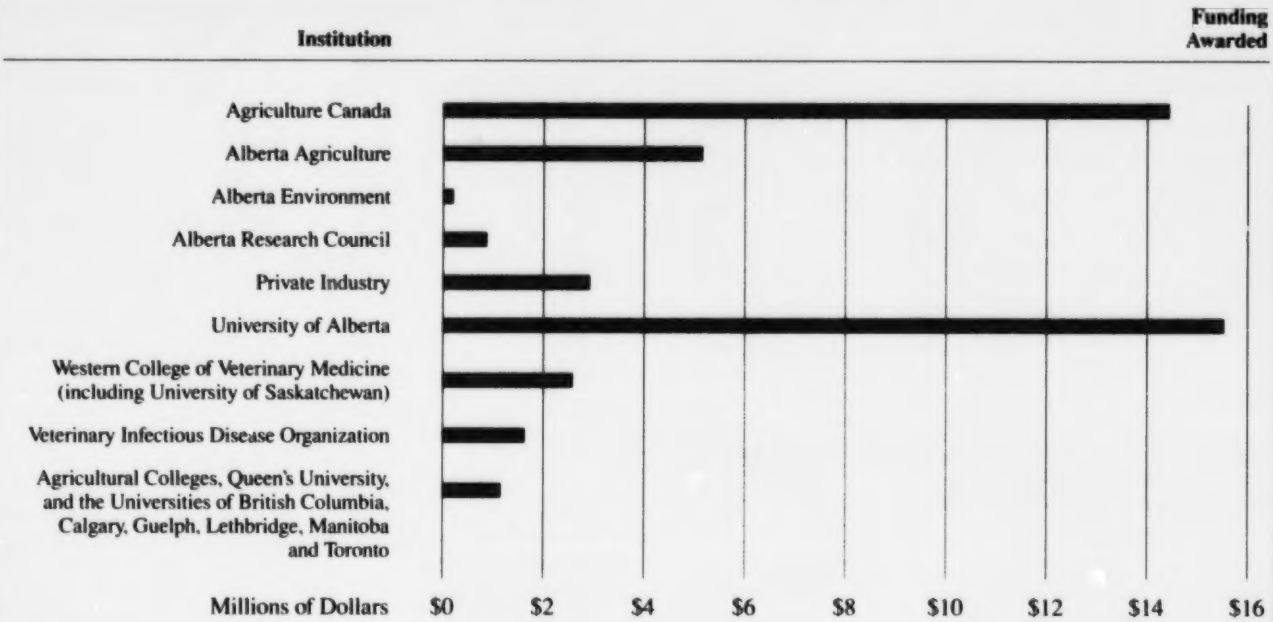
	New Projects		Renewed Projects		Total	
Year	Number	Funding	Number	Funding	Number	Funding
1979-80	54	$2,133,680	–	$ –	54	$ 2,133,680
1980-81	31	980,465	51	2,210,642	82	3,191,107
1981-82	25	761,915	80	3,281,402	105	4,043,317
1982-83	40	1,594,500	101	4,116,911	141	5,711,411
1983-84	49	2,439,675	93	4,602,785	142	7,042,460
1984-85	101	4,343,769	–	–	101	4,343,769
1985-86	38	1,513,079	65	3,309,988	103	4,823,067
1986-87	37	1,533,870	58	3,038,487	95	4,572,357
1987-88	86	3,811,183	–	–	86	3,811,183
1988-89	54	1,802,000	46	2,114,000	100	3,916,000
TOTAL	515					$43,588,351

Distribution of On-Farm Demonstration Program Projects and Estimated Funding by Year

	New Projects		Renewed Projects		Total	
Year	Number	Funding	Number	Funding	Number	Funding
1982-83	47	$163,194	–	$ –	47	$ 163,194
1983-84	60	227,846	14	75,336	74	303,182
1984-85	80	226,940	25	93,944	105	320,884
1985-86	92	248,149	29	110,020	121	358,170
1986-87	108	342,044	31	125,102	139	467,146
1987-88	96	383,162	41	158,174	137	541,336
1988-89	114	353,935	54	239,240	168	593,175
TOTAL	597					$2,747,487

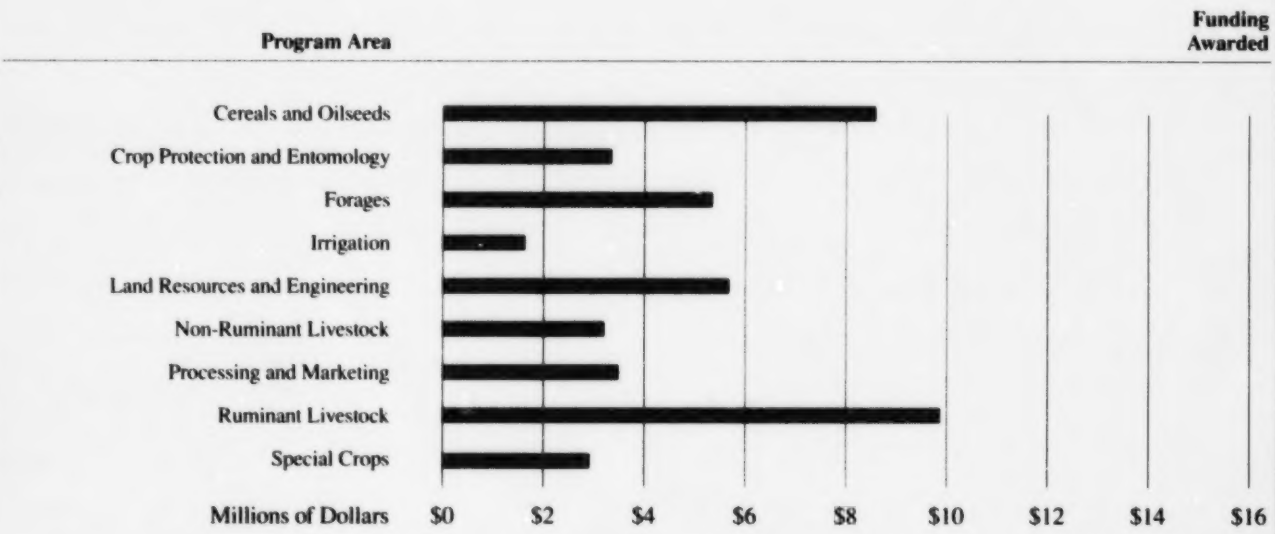
Distribution of Research Program
Estimated Project Funding by Institution

1979-80 to 1988-89



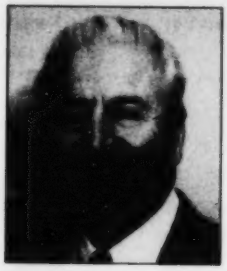
Distribution of Research Program
Estimated Project Funding by Program Area

1979-80 to 1988-89



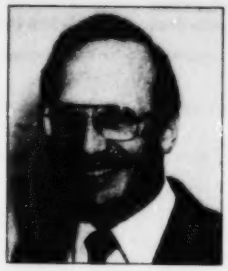
Farming For The Future Council

Mr. H.B. McEwen
Deputy Minister
Alberta Agriculture
Chairman



Mr. Jack Ady
MLA
Cardston

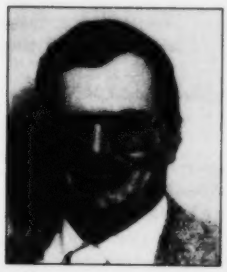
Mrs. Jacalyn Anderson
Producer
Rimbey



Dr. R.G. Christian
Executive Director
Research Division
Alberta Agriculture

Mr. Don Cox
Producer
Fairview

Dr. D.J. Currie
Vice-President
Alberta Research Council



Mr. Gail Fjordbotten
Producer
Granum

Mr. Jim Hole
Producer
St. Albert

Mr. Murray Holt
Producer
Sangudo

Mr. Keith Porter
Producer
Duffield

Mr. Nestor Romaniuk
Producer
Willingdon

Mr. E.J. Shimbashi
Chairman
Alberta Irrigation Council

Dr. Yilma Teklemariam
Research Manager
Research Division
Secretary

Dr. Ed Tyrchniewicz
Dean, Faculty of
Agriculture and Forestry
University of Alberta

Dr. D.E. Waldern
Director
Agriculture Canada
Research Station – Lacombe

Program Committees

Program Area	Cereals and Oilseeds	Crop Protection and Entomology	Forages
Chairman	Mr. Gail Fjordbotten, *Granum* Producer	Mr. Don Cox, *Fairview* Producer	Mr. Murray Holt, *Sangudo* Producer
Vice-Chairman	Mr. Don Macyk, *Edmonton* Alberta Agriculture	Mr. Keith Price, *Edmonton* Alberta Agriculture	Mr. Robert Nelson, *Lacombe* Alberta Agriculture
Members	Mr. Kenneth Appleby, *Tofield* Producer	Mr. Robert Gartly, *Eaglesham* Producer	Dr. V.S. Baron, *Lacombe* Agriculture Canada
	Dr. Keith Briggs, *Edmonton* University of Alberta	Mr. Daniel Groenenboom, *Kipp* Producer	Mr. Roger Gauthier, *High Prairie* Producer
	Mr. Douglas Duff, *Olds* Producer	Mr. Wayne Iddings, *Rimbey* Producer	Mr. Bob Grinde, *Rimbey* Producer
	Mr. Eugene Elm, *Hardisty* Producer	Dr. John Spence, *Edmonton* University of Alberta	Mr. Murray Holt, *Sangudo* Producer
	Mr. Michael Lavoie, *St. Isidore* Producer	Dr. D.L. Struble, *Lethbridge* Agriculture Canada	Dr. Jane King, *Edmonton* University of Alberta
	Dr. R.I. Wolfe, *Beaverlodge* Agriculture Canada		Mr. Paul Sorenson, *Berwyn* Producer
			Mr. M.G. Turnbull, *Edmonton* Alberta Forestry, Lands and Wildlife

Program Area	Irrigation	Land Resources and Engineering	Non-Ruminant Livestock
Chairman	Mr. Ed Shimbashi, *Barnwell* Producer and Chairman, Alberta Irrigation Council	Mr. Nestor Romaniuk, *Willingdon* Producer	Mr. Keith Porter, *Duffield* Producer
Vice-Chairman	Mr. Gary Hartman, *Lethbridge* Alberta Agriculture	Mr. Paul Barlott, *Edmonton* Alberta Agriculture	Dr. Terry Church, *Edmonton* Alberta Agriculture
Members	Mr. Leighton Buckwell, *Fort Macleod* Producer	Dr. R.J. Fessenden, *Edmonton* Alberta Research Council	Dr. D.L. Hamilton, *Saskatoon* Western College of Veterinary Medicine
	Mr. Brian Colgan, *Edmonton* Alberta Agriculture	Mr. Gerry Good, *Carstairs* Producer	Mr. Harvey Lehr, *Topland* Producer
	Mr. Paul Edlund, *Burdett* Producer	Mr. Ike Lanier, *Lethbridge* Producer	Mr. Bryan Perkins, *Wainwright* Producer
	Mr. Lyman Garner, *Hill Spring* Producer	Dr. C.W. Lindwall, *Lethbridge* Agriculture Canada	Dr. Allan Sather, *Lacombe* Agriculture Canada
	Mr. John Hollinda, *Tilley* Producer	Dr. William McGill, *Edmonton* University of Alberta	Dr. J.S. Sim, *Edmonton* University of Alberta
	Mr. Jake Thiessen, *Edmonton* Alberta Environment	Mr. Albert Pimm, *Grimshaw* Producer	Mr. Dale Steckly, *Carstairs* Producer
	Mr. Peter Vanden Dungen, *Vauxhall* Producer	Mr. Ron Svanes, *Carmangay* Producer	

Program Area	Processing and Marketing	Ruminant Livestock	Special Crops
Chairman	Mr. Jack Ady, *Cardston* Producer and MLA	Mrs. Jacalyn Anderson, *Rimbey* Producer	Mr. Jim Hole, *St. Albert* Producer
Vice-Chairman	Mr. Les Lyster, *Edmonton* Alberta Agriculture	Mr. Ron Weisenburger, *Edmonton* Alberta Agriculture	Mr. Thomas Krahn, *Brooks* Alberta Agriculture
Members	Dr. Stewart Campbell, *Lethbridge* Canbra Foods Ltd.	Mr. John Buckley, *Cochrane* Producer	Dr. N.R. Knowles, *Edmonton* University of Alberta
	Mr. Terry Heyward, *Edmonton* Agriculture Canada	Dr. Cecil Doige, *Saskatoon* Western College of Veterinary Medicine	Dr. H.-H. Meundel, *Lethbridge* Agriculture Canada
	Dr. Michael Stiles, *Edmonton* University of Alberta	Mr. J.E. Lawson, *Lethbridge* Agriculture Canada	Dr. Raj Nagarajan, *Edmonton* Alberta Research Council
	Dr. T.S. Veeman, *Edmonton* University of Alberta	Dr. M.A. Price, *Edmonton* University of Alberta	Mr. Gerald Perry, *Cranford* Producer
		Mr. Ben Schrader, *Jarvie* Producer	Mr. Robert Sproule, *Sherwood Park* Salisbury Greenhouses
			Mr. Jerry Thacker, *Burdett* Producer

Regional Review Committees

Region **I. Southern**

Chairman Mr. Don Young, *Lethbridge*

Members

Producers
Mr. Peter Biemans, *Seven Persons*
Mr. Ralph Cervo, *Lundbreck*
Mr. Steve Slemko, *Coaldale*
Mr. Frank Spanbauer, *Barnwell*

Alberta Agriculture Staff
Mr. Gordon Frank, *Brooks*
Mr. Alan George, *Lethbridge*
Mr. Blair Shaw, *Lethbridge*

Region **II. South Central**

Chairman Mr. Glen Werner, *Airdrie*

Members

Producers
Mr. Lindsay Eklund, *Cochrane*
Mr. Brian Clarke, *Olds*
Mr. Harvey Jackson, *High River*
Mr. Arthur Jaques, *Oyen*
Mr. William Noy, *Rosebud*

Alberta Agriculture Staff
Mr. Donald Milligan, *Airdrie*
Mr. Lorne Owen, *Airdrie*
Mr. Richard Smith, *Airdrie*
Mr. Larry Welsh, *Airdrie*

Region **III. North Central**

Chairman Mr. Alan Hall, *Red Deer*

Members

Producers
Ms. Joyce Bussard, *Wetaskiwin*
Mr. Terry Crisp, *Monitor*
Mrs. Ulla DeBruijn, *Ponoka*
Mr. Ken Nelson, *Stettler*
Mr. Larry Steeves, *Meeting Creek*

Alberta Agriculture Staff
Mr. Wayne Jackson, *Red Deer*

Region **IV. Northeast**

Chairman Mr. Ralph Berkan, *Vermilion*

Members

Producers
Mr. Clement Fontaine, *St. Paul*
Mr. William Hamblin, *Vermilion*
Mr. Robert Schacher, *Tofield*
Mr. Reg Semeniuk, *Smoky Lake*
Mr. Wyett Swanson, *Provost*

Alberta Agriculture Staff
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Mr. Ellis Treffry, *Vermilion*
Mr. Randy Bjorklund, *Lloydminster*
Ms. Edith Zawadiuk, *Two Hills*

Region **V. Northwest**

Chairman Mr. John Tackaberry, *Barrhead*

Members

Producers
Mr. Dale Grieg, *Barrhead*
Mr. J.W. Lawton, *Niton Junction*
Mr. Clarence Volkman, *New Sarepta*
Mr. Garry Webber, *Stony Plain*
Mr. Fred Witney, *Boyle*

Alberta Agriculture Staff
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Mr. Robert Winchell, *Barrhead*
Mr. Wayne Winchell, *Barrhead*

Region **VI. Peace River**

Chairman Mr. John Knapp, *Fairview*

Members

Producers
Mr. Alan Barnes, *Enilda*
Mr. Allen Bulhofner, *Woking*
Mr. Grant Hicks, *McLennan*
Mr. John Simpson, *Fort Vermilion*
Mr. Don Wieben, *Fairview*
Mr. Tony Yelenik, *Valleyview*

Alberta Agriculture Staff
Mr. Roger Andreiuk, *Spirit River*
Ms. Therese Beaudoin, *Falher*
Mr. Marvin Nakonechny, *Falher*
Mr. David Spencer, *Peace River*